

Money and morale: Keys to retention
Desperate to hire IT pros? Frantic to keep your stars? How you pay them can help — or hurt. **Managing, 50; IT Careers, 64**



Breakfast of programmers
Programmer productivity improves when the snacks are under control. **33**



COMPUTERWORLD

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FREWARE PHOBIA

► Web embraces Linux, Apache; but CIOs don't

By Steven Deck

ANDY MARTIN, chief technology officer at a young, Web-based business, has good reasons for using freeware. His free Apache Web server software is more reliable — and nearly three times faster — than the commercial product it replaced.

Harry M. Levy, executive vice president at a more traditional corporation, has just as many reasons for his freeware phobia. It's hard to tell the board of directors of a public company that you plan to bet the business on free software that "might blow

Freeware, page 20

Andy Martin of Garden Escape runs an online store with Apache freeware

Car dealers yield sales to Internet

By Bob Wallace

THE INTERNET is changing the competitive landscape for auto dealers, with an impact so deep it is affecting how many vehicles they can get from automakers to sell. Chrysler Corp., for example, allocates more cars to dealerships that sell more — a policy that can reward dealers

who exploit the Internet to boost sales.

But that allocation policy has caused some friction in the Chrysler family.

The Federal Trade Commission recently said 25 Chrysler dealers threatened to boycott Chrysler because one small-town dealer was successfully using the Internet to sell more automobiles.

"Dave Smith Motors of Kellogg, Idaho, was attracting customers from around the Northwest and taking substantial sales from" other dealers, an FTC statement said. "The goal of the boycott was to limit sales

Car dealers, page 17



Reliance on temps creates new problems

By Barb Cole-Gomolki

YEARS of corporate downsizing and the high-tech labor shortages have forced information systems departments to rely heavily on temporary workers — maybe too much so.

Although 15 executives say temps have helped them cut costs and secure hard-to-find talent for key projects, some worry about the risks of having a corps of workers whose loyalty is uncertain.

With the move toward so-called permatemps, or long-term temporary employees, "we

Temps, page 85

Microsoft reaching out to user groups

ONCE IGNORED, NT GROUPS WIN SOME BACKING

By Sharon Gaudin

AS PART of its strategic plan to woo corporate users, Microsoft Corp. is taking concrete steps to link up with the hundreds of grassroots user groups that have long been on their own.

The Worldwide Association of NT User Groups, Inc., an umbrella organization of about 300

Windows NT user groups with a total of about a quarter million members, last week revealed it has received a promise of regular financial backing and moral support from Microsoft. A company spokesman said Microsoft has received the association's request for support but doesn't know if that request has

Ultimate group, page 84

GROUPS SEEN AS ALLIES IN QUEST FOR ENTERPRISE

By Sharon Gaudin

MICROSOFT CORP. is gunning for enterprise accounts, and as it made clear at a recent analysts' meeting, service and support are its weapons of choice. With that in mind, it appears the company is finally taking a closer look at the value of forging a relationship with user groups (see story above).

To win over the corporate elite, Microsoft has to prove that it can do more than just close the big sale. User groups may prove a potent vehicle for not only getting out the message that it can do more, but also for helping provide those services.

"My impression is that there needs to be a lot of work done [in this relationship]," said Nick

Groups, page 84



Joseph Stankiewicz
Senior, Microsoft

Devin Felt
Tandy

Jim Gentry
Kraft

Steve F. Schmitt
P. J. Schmitt

William F. Felt
Professional Insurance

Jeff Galt
AllEnergy Marketing

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on IT analyst firms.

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you getting?

YOU may get validation of your IT strategy, help in getting the best price from suppliers and a heads-up on product weaknesses. But you might get the same information sliced and diced in too many ways for too much money. We asked nine CIOs (six are pictured above) to recall their experiences with analyst firms such as Gartner Group and Forrester Research. **Byron Center, page 56.**

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EXECUTIVE Briefing

News summary for senior managers

*Faced with complex technology decisions, many executives turn to the big technology analyst firms. Our review shows that Gartner is the leader, mostly for its size and breadth of research; Giga tends to be a backup for the same things, but on a more one-on-one basis; Forrester gives the big picture in terms understandable by the nontechnical exec; Meta is industry-specific; and the Corporate Advisory Board talks HR and staffing issues to big-company CIOs. Chief complaints include selling less info for more dough. Top IS executives reveal which analysts have helped and how to use them. Page 56

*In a world where hot IT skills are scarce, new recruits can command a 15% salary premium, driving away current staff who were hired for less. Managers respond by paying market rates for specific skills, taking salary off the table as a reason to leave. Then they use flexible schedules, raises and other monetary incentives to keep staffers from job hunting. Page 64


*The SEC recently told 5,000 companies to "less up on their year 2000-readiness plans. That request is only the tip of the iceberg, as government agencies push for more regulation of key IT issues. Paul A. Strimman predicts. He sees a time when technology operations will face the same scrutiny as manufacturers and other non-electronic businesses. Page 54

*Green Mountain Coffee moved from DOS apps to PeopleSoft to automate many of its business processes and keep up with growth that averaged 30% per year. The move paid off in a supply chain that's much more efficient and an infrastructure that lets it focus on wholesale and direct sales as it closes or sells its retail stores. Page 33

*The Pizza Matrix of software development requires locking programmers in a room and sleeping just under the door until their code is done. The result? Overweight, unproductive programmers. We spoke to counselors and programmers who learned how to trim the fat and make the techies healthier by using one of their favorite tools that they always have close at hand — software. Page 33

*The top 25 commercial banks have more than 1,000 Internet initiatives under way, but most of them don't pay off in real terms, a new study says. The problem is that acquiring electronic customers often costs more than they're worth. Keep your cost-savings projections conservative, users advise. Page 33

*Telecommuting is a great way to save money at central facilities and move workers commutable time. But telcos are putting high-speed access lines in cities — not in the 'burbs, where workers live. There's not much to do, users said, but wait until Digital Subscriber Line, cable modems and other means become more readily available. Page 41



EXECUTIVE
speakout
 Steve Ballmer
 Bob Herbold
 On testing NT 5.0, year 2000, "Travel" E-mail with customers and other issues
COMPUTERWORLD

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- 9 Lotus delays Notes 5.0 beta to polish its browserlike interface.
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 Fresh Mayo Rags year 2000 consultants for their alarming reports. Get over it — and get on with the flu, he writes.
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OLAP for managing capital expenses and forecasting revenues. Software, page 48

Accession & publishing work, says Health Trust's Mark Arroy. In Brief, page 68

Green Mountain's Jim Prevost says business automation apps made his supply chain more efficient. Corporate Strategies, page 38



Threat of pilots' strike calls systems into action

By David Overton

LAST WEEK, when Northwest Airlines canceled 400 flights in anticipation of a possible pilots' strike, its competitors and other industry players relied on sophisticated information technology systems to adjust their plans.

In fact, airlines, reservation systems managers and travel agents for weeks have been preparing for a Northwest strike and the impact it would have at Northwest's hubs in Detroit, Memphis, Minneapolis/St. Paul and Tokyo.

Travel consultant Bob Langsfeld at Langsfeld Fazio & Associates in Crystal Bay, Nev., said travel agents automatically learn about the cancellations and alternative plans because they are

tapped in directly to the nation's main computerized airline reservations systems, including Sabre Group Holdings, Inc., Galileo International, Inc.'s Apollo and WorldSpan LP.

The huge systems — Sabre's peak message volume is 3,809 per second — are linked with proprietary protocols that let reservations be traced back to agents who make them no matter which system they used.

The Sabre system warned travel agents by posting a message when they logged on that directed them to more information about Northwest's flight status, said spokesman Taylor Cole.

Customers who circumvented travel agents in favor of the phone or the Internet, however, will be notified only by a phone

call or E-mail placed by their Internet services, agents or airline personnel, Langsfeld said.

"You use the Internet to reduce the manpower, but for situations like this you need manpower," he said.

At the corporate customer level, the human factor also plays a key role. Zachary Hicks, travel services manager at Toyota Motor Sales USA, Inc. in Torrance, Calif., said he is able to search the Apollo system to find employees with ill-fated reservations on Northwest.

He said the company was able to avoid being heavily affected because it knew the labor troubles were coming and stopped booking Northwest flights. Detroit is one of Toyota's top 10 destination cities, Hicks said. The major airlines have



A looming strike by Northwest Airlines could hold up passengers at airport hubs such as this one in Detroit.

elaborate database systems set up to facilitate the complicated job of redefining planes and rescheduling flights to accommodate as many stranded passengers of competitors as possible, Langsfeld said.

The decision support systems often integrate multiple back-end databases, sometimes residing on partitioned mainframes.

In time, he said, airlines have honed their databases to return

information about which flights are likely to be empty at which times. Those flights can be rescheduled to take over grounded Northwest flights.

Delta Air Lines said it expects heavy volume to hit its reservation call centers. The airline planned to honor Northwest tickets issued on or before Aug. 28. □

Senior editor Jinkumar Yajvan contributed to this story.

Is Wintel union showing strain?

• Microsoft said to pressure Intel on interests

By Stewart Duck

AS MICROSOFT CORP. Chairman Bill Gates sat down last week to give a deposition in his company's antitrust tussle with the U.S. Department of Justice, reports of Microsoft threats against Intel Corp. led some industry watchers to wonder whether the industry-dominant Wintel partnership may be on the wane.

A source close to the antitrust case confirmed that Intel documents and depositions by com-

pany executives describe a 1995 meeting in which Gates threatened to work more closely with Intel's competitors if the microprocessor maker didn't trim its outside technology interests.

Intel spokesman Chuck Mulloy confirmed that Intel turned over documents to investigators earlier this year but declined to confirm "subpoenas, depositions or any other activities."

Bob Enderle, an analyst at Giga Information Group in San Jose, Calif., said Microsoft and Intel are like siblings and

each has likely threatened the other in the past. But in the end, he said, they will probably do what's best for the Wintel platform.

If, however, the two companies ever aired their disagreements publicly, "it could escalate to a no-holds-barred problem that could damage each severely," Enderle added.

INEVITABLE

But Carl Howe, an analyst at Forrester Research, Inc. in Cambridge, Mass., said Intel and Microsoft are on divergent paths anyway, regardless of whether their squabbles are aired. "Any rifts have been taken care of within the 'family,' but the family's growing up and the kids are going to start going off on their own soon," Howe said.

To some observers, reports of Microsoft pressuring Intel indicate that the government may be extending its case beyond browser and operating system linkages and into anticompetitive and predatory market conduct.

"Most courts would recognize that a pattern of abusive predatory conduct would be relevant" to the case, along with any attempts at market allocation, said Lewis Noonberg, an attor-

ney who specializes in antitrust and trade regulation at Piper & Marbury LLP, a law firm in Washington.

Microsoft officials said the Justice Department was grasping at straws. "We believe the government's last-minute efforts to rewrite their allegations are very unfortunate," said Microsoft spokesman Mark Murray. "The facts will show that Microsoft has always conducted its business in a fair and legal manner."

Separately, last week, Microsoft picked up some formalized support from a newly

formed organization of software, resellers and service companies called the Technology Access Action Committee (TAAC). The companies in the TAAC have joined forces to combat what they call the "excessive government interference" that threatens growth and innovation in the computer industry.

"If the government continues down its current path, the creativity and entrepreneurial spirit of the technology industry will be severely jeopardized," said Jay Amato, chairman of the TAAC and CEO of Vanstar Corp. □

Clarification

A July 6 story, "Market for 'net-based procurement' software: SAP into vendor pack," could have been misinterpreted as saying Chevron Corp. and Federal Express Corp. plan to use Netscape Communications Corp.'s Internet-based procurement solutions. Both companies are customers of Arbis Technologies, Inc.

Corrections

A June 1 IT Career story, "The young and the restless,"

misidentified Elaine Brodner's place of employment. She is a staffing advisor at The Hartford Financial Services Group.

A July 20 Servers & PCs brief on new Dell Computer Corp. servers incorrectly identified the product line. The products are Precision Workstation 650 and PowerEdge 6500. They were announced June 29.

A July 20 IT Career story on the Wall Street Journal Interactive Edition misidentified the career management specialist. He is Tony Lee.

Tales of Bill Gates

With Microsoft set to battle the U.S. Department of Justice and 30 states in court next month, everyone wants to be a pundit.

First Jennifer Edstrom, daughter of Microsoft's main public relations guru, Pam Edstrom, learned with former Microsoft programmer Martin Eder to drop the notion that Microsoft CEO Bill Gates secretly orchestrated his phenomenal success. In their book, *Billionaires Led by Bill Gates* (Henry Holt and Co., New York, \$23), they claim that Gates simply stumbled into his powerful place in the PC industry.

Now, in *The Microsoft File* (Times Books, New York, \$25.95), due next week, technology reporter Wendy Goldman Robm concludes that Gates and his pod of top executives are first-class con-men, not fortuitous successes.

Although public attention is focused on Microsoft's battles with lawyers on several fronts — a Sept. 23 trial on the government's broad antitrust charges involving Windows 95 and a suit brought by Sun Microsystems, Inc. over alleged violations of a Java license, among them — much of the book centers on the past, including Microsoft's ill-fated partnership to co-build the OS/2 operating system with IBM. — Kim S. Nash

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The search goes on for Java developers

By Carol Sliva

WHILE STAMINED Java programmers hard to find, large companies looking to do critical business applications are turning to consultants to help pump-start their projects while their own in-house developers get up to speed.

Several companies doing serious Java work said they need developers who not only understand how their business works, but are also highly skilled in object-oriented programming—and that's a tough proposition.

That's particularly true in the financial services industry, where developers need to supply programs that will help do risk assessments for investors or build trade processing systems for brokers, for example.

Companies are left with two choices, said Jeffrey Burre, director of information technology at Daiwa Securities America in New York. "You can take them away from another firm where they were doing that sort of thing. [Or] you have somebody who not only wants to program but wants to learn the business," he said. "That's no different from the situation companies faced in seeking good C++ programmers in the early '90s. Burre noted. But because Java is only 3 years old, the available talent pool is smaller.

Computerworld's annual skills survey, to be published in November, shows that 25.3% of 493 IT managers polled have some level of Java skill on staff. During the next year, 21.9% plan to do Java training, and 14.4% expect to hire for Java.



Daiwa Securities' Jeffrey Burre uses both in-house Java programmers and consultants

skills. Still Microsystems, Inc., Java's inventor, has authorized 41 centers for Java training. And colleges and even some high schools are teaching object-oriented programming (see related story at right).

It could take years, however, for knowledge to seep up to corporate IT shops. A dearth of seasoned Java programmers has forced some to turn to outside

consultants for help.

Burre, for instance, has five in-house programmers and another six from a local consultancy working on a trio of Java applications: a trading system that can route business transactions to different processing locations in air-traffic controller fashion, a Japanese equity-trading system and a trade-clearing system for remote brokers.

Standard & Poor's has partnered with Ernst & Young LLP on an application that will let its corporate customers access risk assessment ratings and information through World Wide Web browsers.

Because New York-based Standard & Poor's wanted its own people working on the project, it hired in five of its best in-house staffers and five new hires to learn Java. Ernst & Young serves as a mentor.

"If you bring in too many people from outside, you don't really know if you're doing the right stuff," such as knowing if the information provided by an application is displayed correctly, said Leon Abudamat, senior director of technology at Standard & Poor's.

Salbe Technology Solutions, a division of AMR Corp. in Fort Worth, Texas, enlisted the help of Sun's professional services to pump-start its in-house Java developers, who are working on an application that will air-

Does your organization provide training in Java programming for your application developers?



Do you hire consultants to write Java programs for your organization?



Base: 103 managers at companies that use Java

Source: Computerworld Information Management Group, Framingham, Mass.

In the pipeline

It takes a good five years to reach the master level in object-oriented coding — a solid foundation for top-flight Java programmers, said John Melita, a senior systems engineer at NationsBank Services, Inc. in Chicago.

Of the 120 programmers in NationsBank's Chicago application development staff, about 80 are doing Java development — including 30 nearly exclusively. Given the sort of complex financial systems NationsBank is building, bank officials didn't feel they could take any other approach, they said.

Salbe Technology Solutions also has programmers ramping up in Java. "If somebody is experienced in C++, it's fairly easy to teach them Java — as opposed to teaching someone who hasn't been doing object-oriented programming and throwing them into Java," said Scott Frederick, a development director at Salbe.

A Computerworld survey of 103 information systems managers at companies using Java showed that more than half are training their programmers in Java, and 40% said they hire outside consultants to write Java programs (see chart).

Outside the business world, educators are introducing object-oriented programming to students at earlier ages, which could lead to better trained developers down the road. Educational Testing Services in Princeton, N.J., administers to high school students a computer science advanced-placement test that requires knowledge of C++ — Carol Sliva

line reservations professionals book flights.

The Home Depot, Inc. in Atlanta relies on in-house talent, having made a major investment in Java for projects that include in-store customer ser-

vices and mobile ordering. Of the retailer's 360 programmers on staff, 110 know Java.

"Our plan is to train 'em all," said Mike Anderson, Home Depot's vice president of technology. □

Secure Web site to serve fund managers

► Nasdaq system to offer more flexibility

By Thomas Hoffman

THE NASDAQ Stock Market, Inc. will launch a secured Web site next month that's expected to make it easier for mutual fund managers to submit accurate fund prices by their daily deadlines.

The Washington-based stock market is moving its Mutual Fund Quotation System off an antiquated, 12-year-old DOS-based system to a browser-based World Wide Web site developed by Enock, a New York-based multimedia agency that has developed Nasdaq.com and four other Web sites for the

all-electronic stock market.

Mutual fund managers will use the secured site www.nasdaqmfg.com to send Nasdaq their end-of-day mutual fund prices, which Nasdaq compiles and sends to The Associated Press. AP routes the information to other news organizations such as Dow Jones & Co.'s Wall Street Journal and market-data vendors such as Reuters PLC.

The Nasdaq service is very time-sensitive. Fund managers have less than two hours from the market's close to validate their mutual fund prices and send them to Nasdaq. So saving time is critical.

Jim Wilson, manager of Converged Accounting at T. Rowe Price in Baltimore, said the Internet system "should be considerably more flexible in terms of our workstation environment and user functionality." Under the current system, for example, T. Rowe Price has to use a dedicated workstation to send fund prices to Nasdaq's DOS-based system. Using the Internet approach, T. Rowe Price will be able to "integrate the Web-based application on a variety of existing workstations, thereby leveraging our current technology infrastructure," Wilson said.

The new system "should absolutely help" Nasdaq streamline the fund quotation process,

said Octavio Marenzi, research director at Meridian Research, Inc., a Newton, Mass.-based financial services technology research firm.

Unlike the DOS-based system, the Web site will show the Nasdaq "time" on each page so that fund managers are able to finish their valuations and stay synchronized with the Nasdaq clock to stay on deadline, said Adena Friedman, Nasdaq's director of trading and market services.

In addition, mutual fund managers previously had to manually enter prices for each of the funds into the system. That was time-consuming because the more than 10,000

funds entered daily come from only 640 fund families, and many of the fund families are represented by pricing agents. Using the Internet, pricing agents and fund managers can now import ASCII files with the prices for several funds.

The DOS-based application also prevents users from scrolling back a page at a time to see if they have made any mistakes in the fund prices they are submitting.

As part of the project, Nasdaq is replacing the 10.2 kb/sec. circuits from AT&T Corp. that connect the mutual fund companies with a 56k bit/sec. private data circuit from WorldCom, Inc. that will support Web browsers and let users switch communications to the Internet if the private circuit goes down, Friedman said. □

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Companies are left with two choices, said Jeffrey Borror, director of information technology at Daiwa Securities America in New York. "You can take them away from another firm where they were doing that sort of thing. [Or] you have somebody who not only wants to program but wants to learn the business," he said. That's no different from the situation companies faced in seeking good C++ programmers in the early '90s, Borror noted. But because Java is only 3 years old, the available talent pool is smaller.

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JAVA HELP

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Mutual fund managers will use the secured site (www.nasdaqnfi.com) to send Nasdaq their end-of-day mutual fund prices, which Nasdaq compiles and sends to The Associated Press. AP routes the information to other news organizations such as Dow Jones & Co.'s Wall Street Journal and market-data vendors such as Reuters PLC.

The Nasdaq service is very time-sensitive: Fund managers have less than two hours from the market's close to value their mutual fund prices and send them to Nasdaq. So saving time is critical.

Jim Wilson, manager of Converged Accounting at T. Rowe Price in Baltimore, said the Internet system "should be considerably more flexible in terms of our workstation environment and user functionality." Under the current system, for example, T. Rowe Price has to use a dedicated workstation to send fund prices to Nasdaq's DOS-based system. Using the Internet approach, T. Rowe Price will be able to "integrate the Web-based application on a variety of existing workstations, thereby leveraging our current technology infrastructure," Wilson said.

The new system "should absolutely help" Nasdaq streamline the fund quotation process,

said Octavio Marrero, research director at Meridian Research, Inc., a Newton, Mass.-based financial services technology research firm.

Unlike the DOS-based system, the Web site will show the Nasdaq "time" on each page so that fund managers are able to finish their valuations and stay synchronized with the Nasdaq clock to stay on deadline, said Adena Friedman, Nasdaq's director of trading and market services.

In addition, mutual fund managers previously had to manually enter prices for each of the funds into the system. That was time-consuming because the more than 10,000

funds entered daily come from only 640 fund families, and many of the fund families are represented by pricing agents. Using the Internet, pricing agents and fund managers can now import ASCII files with the prices for several funds.

The DOS-based application also prevents users from scrolling back a page at a time to see if they have made any mistakes in the fund prices they are submitting.

As part of the project, Nasdaq is replacing the 19.2K bit/sec circuit from AT&T Corp. that connects the mutual fund companies with a 56K bit/sec, private data circuit from WorldCom, Inc. that will support Web browsers and let users switch communications to the Internet if the private circuit goes down, Friedman said. □

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SAP set to deliver on move beyond the back office

► U.S. shows to focus on new companion software for R/3 applications

By Craig Stedman

IT'S SHOW TIME for SAP AG — in more ways than one.

SAP is holding an R/3 developer's conference in Los Angeles this week and will return in two weeks for the U.S. version of its Sapphire user conference. And the spotlight is expected to shine on long-promised new software modules that finally are coming to fruition.

Included are sales force automation, supply-chain planning, Internet-based procurement and data analysis products that take SAP into application areas beyond R/3's back-office stronghold. All are due for either initial shipments or general availability by year's end.

The German company also is expected to focus heavily — especially at this week's SAP TechEd '98 conference — on its emerging component-based architecture and new development tools that are supposed to

make it easier for users and software vendors to hook applications to R/3 (see chart).

For R/3 shops, SAP's stretch beyond the back office poses a dilemma: Buying all kinds of applications from SAP could reduce software integration headaches but force shops to pass up functionality that more specialized vendors provide.

Ben Vettease, director of SAP applications at Elf Atochem North America, Inc. in Philadelphia, said he likes the idea of getting as much software from SAP as possible.

EASIER ACCESS TO DATA

In particular, SAP's Business Information Warehouse software looks like it could open up R/3 data to users at the chemical company who need to do analysis and reporting, he said.

And SAP seems to be living up to its shipment promises, Vettease said. But he added that he would like to have seen some of SAP's new software,

WHAT'S ON TAP

Key upcoming items at SAP's upcoming conferences

SAP TechEd '98

► Updated road map for Business Framework component architecture

► New development tools for tying applications to R/3

Sapphire '98

► Shipment plans for new applications outside R/3's back-office core

► Plans to make R/3 screens more user-friendly

► Update on vertical industry tailoring of R/3

► Marketing push for R/3's human resources module

such as its business planning module, treated as "a natural extension" of R/3 instead of as separately priced products.

Hydro Agri North America, Inc. in Tampa, Fla., a maker of fertilizers and other agricultural chemicals, also is eyeing SAP's data warehousing software. Tying in non-SAP software can be tough because of R/3's size and complexity, said Andy Hafer, director of information management at Hydro Agri.

WARY OF NEW RELEASES

"But I'm not sure I'm going to be a customer who buys the whole SAP suite without really thinking about it," Hafer said. The learning curve Hydro Agri had to climb when it installed R/3 made the company "a big believer in not going with the initial release of something from SAP," he said.

And bolt-on software can be more tightly focused than what SAP offers, Hafer said. For example, Hydro Agri wrote its own program to link remote warehouses to R/3 and now is looking at third-party software that would let salespeople enter plant nutrition data into R/3 when placing orders.

SAP declined to comment in detail on its announcement plans for TechEd and Sapphire. Business Information Warehouse and the other "extended enterprise applications" are being positioned as optional companions to R/3, although they are also supposed to run as stand-alone products.

Once the new software does become available, current R/3 users should get ready for a fresh onslaught from SAP's sales force, said Bruce Richardson, an analyst at AMR Research, Inc. in Boston. "They're going to become like life insurance salespeople. They're just going to swarm all over you," he said. □

The road less taken

Perspectix, Inc.'s strategy for front-office applications boils down to this: "Buy them from these guys over there, OK?"

Perspectix, in Pleasanton, Calif., is taking an entirely different front-office approach from application rivals SAP AG, Oracle Corp. and The Sage Co. These companies are busy developing or buying software that manages jobs such as sales force automation and customer service.

But Perspectix last week said it plans to rely mainly on integration deals with front-office vendors Siebel Systems, Inc. in Menlo Park, Calif., and The VisiOn Corp. in Santa Clara, Calif. Unlike business software from these companies and Perspectix applications are due for releases by the middle of next year.

Browsers had circled that Perspectix might swallow up VisiOn, but Perspectix's strategy of buying on that company and Siebel for front-office sales may be a viable alternative to the buy-or-build paths taken by SAP, Oracle and Siebel, said Steve Bessie, an analyst at Harwitz Group, Inc. in Framingham, Mass.

But Perspectix's plans still have "lots of gray areas," Bessie said. It isn't clear whether users will call Perspectix or Siebel and VisiOn if they have problems with the interfaces among the different products.

— Craig Stedman

Canada builds the Autobahn of information highways

► Starting from scratch, Internet optical backbone eliminates several networking layers

By Sharon MacIsaac

CANADA SOON will have the initial piece of what backers call "the world's first nationwide optical Internet," a research backbone that will zip traffic along at up to 40 billion bit/sec.

INCREASING THE BACKBONE

Project: CA-net 3 (Canada), www.canet.ca
Purpose: Research backbone, test new Internet technology
Speed/Time frame: 40G bit/sec., initial connections by October

Project: VBNS (U.S.), www.ngi.gov
Purpose: Part of the Next Generation Internet project (by federal government)
Speed/Time frame: Now at 622M bit/sec., upgrade to 2.4G bit/sec. starts in the fall

Project: Abilene (U.S.), www.internet2.edu
Purpose: Part of the Internet2 project (by universities)
Speed/Time frame: 9.6G bit/sec. backbone, next year

That's fast enough to download the three-hour, 15-minute movie Titanic in just one-fifth of a second, and it's about 16 times quicker than the upgrade to a U.S. research network, Very High Performance Backbone Network Service (VBNS), that

gets under way this fall.

"This is Internet from the ground up," said Andrew Bjerring, president and CEO of the consortium developing the backbone.

The Canadian project, called CA-net 3, eliminates several net-

work layers. The technology is called dense wavelength division multiplexing.

"If you're starting from scratch, that's an excellent [technology] decision to make," said Bill Decker, program director for advanced optical infrastructure at the U.S. National Science Foundation in Arlington, Va., which oversees VBNS.

What's gone are the Asynchronous Transfer Mode and Synchronous Optical Network (SONET) layers being used in U.S. high-speed Internet projects such as VBNS.

"We can't guarantee the quality of service we would get on a commercial network," said Jeff McNamee, vice president for strategic planning at Bell Canada, a division of Bell Canada in Toronto and one of the partners in the CA-net 3 consortium. "Sonet provides a lot of overhead... but that overhead provides something useful."

Partners in the Canadian Network for the Advancement of Research, Industry and Education (CANARIE) consortium developing CA-net 3 will work on network management tools for

the new technology — one of the aspects of the project that participants find so exciting. McNamee said. "A lot of integration is required to make it work properly," he said. Sonet, for example, helps automatically to reroute traffic in the event of a fiber cut; CA-net 3 will need other ways to boost reliability.

CANARIE aims to have nodes in Montreal, Toronto and Ottawa connected by mid-October, with test sites in the rest of the country hooked up in about a year. About 40 universities and research organizations are expected to be on by next year. Early users are expected in education and medicine.

In the U.S., several agencies are working on next-generation projects, some of which have early plans to interconnect. For example, VBNS runs at 622M bit/sec. but will be upgraded to 2.4G bit/sec. this fall. About 55 universities are already connected, with another 40 or so approved to join. □

 Users seek high-speed services for telecom markets. Page 41

working layers typically used by high-speed backbones. Instead, it will run IP data directly over optical fiber that transmits 32 different-colored beams of light. Each of those 32 beams can carry as much data as the single light beam now carried by most

Notes 5.0 beta delayed

By Roberto Fusaro

IT LOOKS AS IF users won't get their hands on the Lotus Notes 5.0 beta — and its significantly different, "browserized" interface — until the latter part of next month.

Cambridge, Mass.-based Lotus Development Corp. last week decided to delay release of the public beta of the groupware product's latest version for nine months to allow for final tweaking of the user interface. The beta was slated to be generally available at the end of August. A beta preview has been posted since July at the Lotus Web site for beta testers and business partners.

In a statement last week, Lotus officials said they wanted to make sure the beta version of Notes 5.0 meets Lotus' high design goals and that new, key innovations in the client are working properly.

Notes 5.0 will feature an interface that has a World Wide Web browser look and feel, rather than the current database, icon-based workspace. For instance, the opening view will be a portal-type headlines page that can be customized to monitor a user's favorite Web sites and important E-mail messages and flash a list of top meetings and appointments for the day.

CATERING TO USERS

Beta-tester Carol Martinez, sales and marketing director at DPI Services, Inc. in San Jose, Calif., said the relatively radical switch seems designed to boost the product's ease of use — something users have told Lotus they want.

The new interface "demonstrates that the company is listening to users and moving [in sync] with the rest of the world," which is increasingly turning to the Internet, she said.

Martinez said she was "frankly surprised that the interface had changed so dramatically," but so far has been pleased with what she has seen in Notes 5.0. DPI Services is a Lotus business partner that makes compliance management software.

Other users agreed with Martinez.

Dennis Murray, a technology manager at Novartis Pharmaceutical Corp.'s clinical development and regulatory affairs division, said the company is "very excited" about the new interface — especially about gaining the ability to push information from the Internet to the desktop and to modify the interface based on user preferences.

Different parts of the business can use those features to present different pieces of information to customers and users, Murray said.

A systems manager at a large East Coast insurance firm said the browser feel of Notes 5.0 plays on the proficiency most users have in cruising the Web.

Hard-core Notes users will probably need some time to adjust to the concept, said the manager, who requested

anonymity, "but ultimately [the new interface] will make it easier for systems managers to train and support users."

Lotus officials said they weren't sure how the delay would affect the company's target of a fourth-quarter shipping date for Version 5.0.

Notes 5.0 beta delayed

By Roberto Fusaro, With Notes 5.0

beta, users could gain the

ability to push Internet information

onto the desktop

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AS/400 revamp to boost app performance

► IBM continues its campaign to attract new users to 10-year-old midrange server

By Jaikumar Vijayan

THE REMARKING of the AS/400 continues. IBM this week will roll out a series of performance-boosting software and hard-

ware enhancements across its entire AS/400 midrange server family.

The enhancements, backed by a multi-million-dollar marketing blitz, are an attempt to convince the AS/400's in-

stalled base of 400,000 users that the platform is here to stay, as well as attract new customers, said Tom Jarosh, general manager of IBM's AS/400 division.

"What the enhancements tell me is

that there is great growth potential left in the AS/400," said George Schaefer, director of information systems at Maine Mutual Insurance Co. in Portland and a 10-year user of the AS/400.

Highlights of this week's announcement include the following:

- The introduction throughout the line of a performance-boosting 64-bit chip, code-named Northstar, that doubles application speeds on high-end AS/400 servers.

- A new release of the operating system, Version 4 Release 3 of OS/400, which includes enhanced Java support, better security for electronic commerce and increased interoperability with Unix and Windows NT applications.

- Storage enhancements that include increased storage space of up to 2.1T bytes, support for disk compression and support for hierarchical storage management.

IBM's enhancements to the AS/400 include the following:

- Fourth-generation 64-bit, 225-MHz processor
- Increased memory capacity
- Increased disk capacity
- I/O performance boost
- Java support

- An enhancement that makes database querying much faster.

- Support for the Secure Electronic Transaction protocol, Enterprise JavaBeans, the latest version of the Java Development Kit and a Java application server from San Francisco-based WebLogic, Inc.

The latest announcements build on the AS/400's traditional strengths but give it enough bells and whistles to attract new customers, said David Andrews, president of D. H. Andrews Group in Cheshire, Conn.

Support for Enterprise JavaBeans and a Java application server — though not of immediate benefit to most users — shows IBM's willingness to keep the platform current, Andrews said.

"If 'open' means interoperability, then I'd say the AS/400 fits that definition quite well" with the latest announcement, said Buck Calabro, a senior applications consultant at Commssoft, Inc., an Albany, N.Y.-based provider of software for billing, service order, customer care and other applications for the telephone and cellular industries.

IBM must now "fix the public perception" of the AS/400 as an outdated proprietary system, Andrews said.

The 10-year-old AS/400 is one of IBM's most popular but low-profile platforms. The major reasons for the server's popularity have been its reliability, scalability and ease of use. But the platform has long been burdened by its proprietary image and what customers perceive as IBM's poor marketing of the product [CW, July 13]. □

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FRANKLY SPEAKING

Too late for scare tactics

FRANK HAYES

Another week, another shocking year 2000 survey. Last Tuesday's entry in the onyagard-it's-a-catastrophe sweepstakes came from the University of North Carolina, where researchers have drawn the shocking conclusion that Fortune 1,000 companies have barely begun to solve year 2000 problems on users' desktops.

In fact, most firms surveyed aren't even sure what's an users' desktops.

We know it's shocking because an analyst from Giga Information Group said so. I know how shocked I am. Are you shocked? I thought so.

As it happens, Giga cosponsored that survey. A few weeks ago, another Giga survey revealed the shocking fact that companies are at risk because of Internet and telecommunications year 2000 problems. It seems Giga releases an-

other shocking survey every few weeks. But Giga's not alone with its gaga. In early August came Gartner Group's startling — its word — news that two-thirds of companies in Russia, China and India and half the companies in Japan and Germany are expected to have at least one mission-critical failure because of year 2000 glitches. Apparently, Gartner ana-



The year 2000 problem is real. If that surprises you, it's already too late.

lysts startle easily.

Maybe it's because we're at the end of an unusually long, unusually hot summer. Maybe it's because I've heard every conceivable excuse for not fixing year 2000 problems, along with a few I

could never have conceived myself. Maybe it's because in the past few months I've been asked endlessly by housewives, students, neighborhood kids and just plain folks how bad things will get on Jan. 1, 2000.

But whatever the reason, I just don't think there's anything left to be shocked, startled, stunned, amazed, astonished, astounded or flabbergasted about when it comes to year 2000.

Not surveys. Not analyst predictions, pundit pronouncements or political posturing. We've heard it all. We've imagined the worst — or refused to imagine it — and no amount of telling us we should be surprised by yet another year 2000-related revelation is going to surprise us.

So why do people keep shouting at us that this or that event might finally throw us into a panic?

I think I've found the answer. In yet another survey. This

one comes from the Information Technology Association of America, which reports that most year 2000 vendors aren't seeing the business they expected from the millennium bug.

According to the survey, only 37% of

year 2000 vendors are meeting sales goals. Only 13% have all the business they can handle for the next six months. Almost half said customers aren't rushing to lock up year 2000 resources.

Those numbers are virtually unchanged from a year ago. We've got it still — lots of year 2000-fixing capacity. No wonder we're hearing an endless stream of bogus astonishment and feigned surprise. Year 2000 vendors are hoping we'll be shocked out of our complacency so we'll finally hire them.

Quit musing our collective intelligence, guys. Sure, give us warnings and suggestions, and make your sales pitch. Maybe we can use the help — but it's because we're already so busy working on the problem, not because we haven't figured out it's there.

The year 2000 problem is real. It's going to cause real failures, even for companies that have slaved for years to clean up their year 2000 act. Some companies won't be prepared. Some companies won't survive. We may find that chilling or perplexing. But for anyone — especially any big organization — to whom that's really surprising, it's probably already far, far too late. □

Hayes is Computerworld's staff columnist. His Internet address is frank.hayes@cw.com.

SHORTS

Amdahl cancels S. Africa event

Amdahl South Africa Ltd. canceled its annual user group meeting to be held in Johannesburg this week, following a bombing the week before in a Cape Town restaurant that killed one person and injured 27. Three senior U.S.-based Amdahl executives pulled out of the conference, according to Computerworld's sister publication, *Computing South Africa*. The executives canceled their trips following a post-bombing directive from Amdahl that its employees travel to Africa only for vital engagements, the magazine said.

FoxMeyer sues SAP

The bankruptcy trustee for FoxMeyer Corp., once a high-flying drug distributor, last week filed a \$500-million lawsuit against SAP AG. The suit, filed in federal court in Wilmington, Del., claims that problems with My helped push Corvallis, Texas-based FoxMeyer into bankruptcy and its eventual asset sell-off. SAP said it had met all contractual commitments to FoxMeyer and described the suit as being "at odds with the facts."

'net bypasses strikers

Hoping to bypass delays on the phone and in local offices because of a labor strike, US West, Inc. customers are flocking to the Internet. The Denver-based regional phone company said service orders on its World Wide Web site have quadrupled since the strike began Aug. 15. Last week, the company added a feature allowing new telephone service to be ordered online, estimating that 75% of requests could be handled promptly because no technician would be required. The Communications Workers of America union is striking over overtime and health care benefits, among other issues.

Hotmail security hole

Hotmail, Inc. users had a scare last week when a Canadian firm, Specialty Installations, discovered a security breach in the free e-mail service. The company demonstrated that a hacker could send a Hotmail user JavaScript code that could prompt the user to re-enter, and therefore expose, his user name and password. Hotmail officials said none of its 21 million users was affected, and the company implemented a filter to disable potentially hazardous scripts.

'26th' virus strikes

A strain of the malicious CM virus struck last week 750 Windows-based PCs in the U.S. last week, but one data recovery firm said nearly all of the damage can be repaired. The three variants of the virus detected so far have activated on the 26th of the month when users boot PCs running Windows 95 or 98. The virus attacks data on the hard drive and attempts to rewrite a PC's flash BIOS ROM, said Stuart Huxley, a vice president at Outback Data International, Inc. in Minneapolis. A Microsoft spokesman recommended using antivirus software and not opening attachments sent via e-mail from unknown sources.

Apple's Rhapsody in autumn

Apple Computer, Inc. plans to release its Rhapsody operating system this fall as the Mac OS X server, said Ken Burshtin, an Apple marketing director, even though Mac OS X won't ship until late next year. Rhapsody, a rewrite of the NextStep operating system acquired from Next, Inc. in December 1996, has mutated from Apple's replacement for the Mac OS to Apple's new server operating system.

Oracle to allow lease-by-Web

Setting that the Web, rather than Windows, will be the desktop platform of the future, Oracle Corp. announced last week that by year's end it will let customers lease its software over the Internet. The leasing scheme would replace the cost of buying in-house server hardware with a fee for space on Oracle servers.

Access bug causes lost data

Microsoft Corp. last week acknowledged that versions 2, 95 and 97 of its Access database office application have a flaw that can cause data to be lost. The flaw is caused by Access misinterpreting Bookmarks — the tool for finding a record programmatically — after a record has been deleted. At press time, Microsoft was preparing a temporary fix that will be posted on the www.microsoft.com Web page in the Access Knowledge Base.

SHORT TAKES Researchers at IBM and the Swiss Federal Institute of Technology in Zurich have developed a new public-key encryption system that they say defends against hackers who crack such coding schemes by deciphering returned error messages. ... **Asynchronous Transfer Mode** standard Fier Systems, Inc. in Pittsburgh has agreed to acquire routing switch start-up Berkeley Networks, Inc. in Milpitas, Calif., for \$50 million. ... The California Senate last week voted 30-0 in favor of a bill that lets Internet service providers sue spammers to recover losses caused by clogged networks or crashes. ... Sun Microsystems, Inc. has released a 599 tool kit for writing collaboration-oriented, distributed Java applications. It is available at the www.java.sun.com Web site.

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Meet Ernie, automated consultant

► Knowledge-based online advice service cuts out high-priced humans

By Julia King

HE DOESN'T WEAR AN expensive suit, play golf or run up travel and entertainment expenses. But he can and does recommend software, track technology trends and keep a compendium of best business practices.

Meet Ernie, Ernst & Young LLP's one-of-a-kind Internet online consulting service, whose knowledge base is available to users for a fraction of the price of a flesh-and-blood consultant.

Leach & Garner Co., a precious-metals jewelry supplier in North Attleboro, Mass., recently spent \$4,000 on Ernie, which it tapped for help in selecting enterprise software. Big Sis consultants, by contrast, wanted between \$100,000 and \$125,000 for the same software selection project.

"We saved quite a bit of money, and what we got back was also an objective reply," said Terry Mitchell, director of information technology at Leach & Garner. "My feeling was that Big Sis firms would only point you to software they would also help you implement."

On the minus side, "we did

invest an awful lot of time internally" in the selection process, Mitchell said. The Leach & Garner team took seven months, compared with the three to four months Big Sis firms said it would take.

"But during that time, we also learned a lot about our project team, and we all brought into it," Mitchell added. "It wasn't like we had the guys in suits come around and tell us what we should buy."

The global management consulting market will grow at an average annual rate of 16.1% through 2000, when the market should exceed \$100 billion in annual revenues, according to Kennedy Research Group in Fitchville, N.H.

Meanwhile at Ernst & Young, Ernie works to reduce the consulting company's own labor costs.

"We're in an incredibly tough labor market, and one of the toughest things is finding people to staff all of the engagements," said Brian Baum, the firm's di-

rector of market development for online consulting services.

Beginning next month, Ernst & Young, which originally targeted Ernie to help companies, will launch a pilot project that includes collecting best practices and other data from engagements under way at five Fortune 500 companies. "From there, we'll build a package that will be targeted at a much larger market," Baum said.

Ernie picks software for a company based on how a project team ranks about 900 system requirements.

"As users define their requirements, it bounces those off of a database that includes more than 80 different software packages. It then narrows their choice down to a short list of three," Baum said.

QUESTIONS, QUESTIONS

Other services available to Ernie's customers include unlimited access to a database of previously asked questions and 90 different online IT training programs. Users, who pay of the annual subscription fee, also can submit individual questions on any topic. Those queries are electronically routed to Ernst & Young consultants, who guarantee to answer within 48 hours. Baum said he believes the automated consulting services are the wave of the future.

"This is a whole new category of consulting that is much more transaction-oriented," he said. "We're transferring our experience and methodologies to users at their desktops."

Two pricing programs are available. For \$1,500 per year, five users get unlimited access to the database of previously asked questions, and each user can submit five original questions. Unlimited desktop access to all services for five users costs \$18,000 per year.

Gartner Group, Inc. analyst Vinnie Mirchandani said he views Ernie as an excellent information resource. "I'm a big fan of knowledge bases and shared services and anything else that breaks the back of high consulting costs," he said.

But live consultants are still needed for more complex issues, such as analyzing gaps between user requirements and a package's capabilities. "The need for the human touch doesn't go away by a long shot," Mirchandani said. □

Tivoli Output Manager targets client/server

By Cynthia Bournelle

TIVOLI SYSTEMS, INC. is expanding beyond its mainframe focus with new output-management software for client/server environments. Last week, the company released Output Manager as part of that strategy.

Unlike output-management software products that Tivoli develops for mainframes, Output Manager was built from scratch. It was designed to deliver critical information to corporate users and various client devices, including fax machines, printers, disk systems and mobile products. The first release runs on Windows NT servers and Windows 95, 98 and NT clients. A Unix version scheduled for the fourth quarter will run on HP-UX, Solaris and AIX.

Blue Cross and Blue Shield of North Carolina, which uses several Tivoli products, will consider using Output Manager, said Greg Bryant, a Tivoli administrator at Blue Cross. Stepped in a mainframe environment, the health insurance provider does several network management processes by hand, such as preparing reports on server uptimes. The reports are printed and then hand-delivered to the appropriate users.

The output management tools used on the company's

mainframes can't be migrated to a client/server platform.

The company is moving some of its processes — including reporting — to Unix systems in an effort that began last December. "I would use [Output Manager] to convert inventory statistics into a report that would show me [my return on investment]," Bryant said.

He added that the product would let information systems departments automate certain procedures such as tracking year 2000 problems and processing insurance claims.

"The software can reduce costs by amounts that vary per customer — for instance, for paper, ink and maintenance fees associated with printers."

"It's not economical to burden a low-volume printer with lots of printing," said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

Tivoli's move follows the lead of Datal Corporation in Austin, Texas, which has led the way in this arena with several enterprise output management products. Datal's core products let 15 managers distribute information to a variety of end user devices, including fax machines and printers, as well as World Wide Web-based and E-mail platforms. □

Upgrades beat Cisco bug

By Bob Wallace

ROUTER MARKET leader Cisco Systems, Inc. is battling a software bug that lets hackers crash its users' routers.

The bug in Cisco's IOS software can let hackers dial in and "crash the router to crashing and reload without having to log in to the router," said a posting on the company's World Wide Web site, which added that the bug is found in Release 9.3.1 and later.

"Pretty much all of our users are on IOS 9.3.1 and after," said a Cisco spokeswoman, who added that the bug was discovered several weeks ago.

Although no fixes are planned for releases 9.3.1 to 10.1, the vendor is already offering free software upgrades to all vulnerable users regardless of contract status. Release 11.0 (2-3), the first regular 12.0 release with the fix, is expected to ship next month, the Cisco statement said.

One large Cisco user expressed some worry about the

bug. "Any security problem is a concern, but we're not overly concerned, and we're not upgrading any projects just to upgrade to the [fixed] IOS release," said Eric Pytko, global infrastructure coordinator at film and camera giant Eastman Kodak Co. in Rochester, N.Y. The company uses about 300 Cisco routers in its global network and plans to upgrade to IOS software versions that don't contain the bug, he added.

"Cisco has not had actual reports of malicious exploitation of the vulnerability," the company said in the Web posting. "However, there have been sporadic reports of unexplained crashes that have been consistent with the crashes caused by this vulnerability. The vulnerability was initially identified because of such a report."

This is the second security-related black eye for Cisco this summer. In June, the company confirmed a problem with the virtual private network encryption on its popular PIX firewall. □

Battling diminishing returns law

By Thomas Hoffman

THE WAY COMPANIES measure the financial returns of mainframe, networking and desktop investments is outdated and needs to be replaced, according to a study of 30 global firms.

Most companies base their investment decisions on 1990s-era metrics, such as net present value and rate of return, the study found. But these investment measures don't work well with equipment such as PCs that might have only a two-year life cycle, said Edward M. Roche, a vice president at The Concours Group, a Kingwood, Texas-based consultancy that conducted the study. The older metrics often "rely on forecast of interest rates and returns, which are always problematical,

and they're not linked to [business] strategies at all," he said.

"Bolderdash," said Paul A. Strassmann, CEO of Software Testing Assurance Corp. in Stamford, Conn., and a Computerworld columnist "Net present value is cash, and you don't trifle with cash."

Roche recommended using a mathematical model that identifies how to invest the least amount of money in a computing tier — mainframes, client/server, desktops — to achieve the greatest amount of strategic output, such as the number of customers served or packages delivered.

That model, Roche argued, focuses on business benefits and eliminates overinvestment or underinvestment in any one computing tier. □

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Oracle attacks app server space

► Positive beta-test buzz; some 3.0 users wary

By David Chouh

For users on thin-client, Internet-based computing, Oracle Corp. last week unveiled Version 4.0 of Oracle Application Server in a bid to claim a prominent space in that cramped market.

The server—formerly positioned as a World Wide Web server—will be released next month priced at \$105 per user. Its areas of middleware, security and management features was designed to be open, but the new server software strongly favors browsers on the front end, Java in the middle and Oracle data at the back end.

Support for Microsoft Corp.'s Component Object Model, Extensible Markup Language, C++ Common Object Request Broker Architecture objects and private-key security aren't included in Version 4.0 but are on Oracle's road map for later versions.

The enterprise class of Redwood Shores, Calif.-based Oracle makes the product an important addition to the application server space, which has been crowded with start-ups, said Mary Adrian, an analyst at Giga Information Group in San Jose, Calif.

"The entry of Oracle into this market suddenly makes the market more significant," he said.

Users agreed last month that Oracle's application server is geared to organizations that want to adopt a multithread architecture with thin clients on the front end. Many—but not all—Oracle users are headed that way.

BALANCING THE LOAD

Bechtel's extensive worldwide operations require a system that can link up project teams with thousands of subcontractors. The dynamic load balancing capability of Oracle's new application server makes it more scalable, Dhillon said.

Jeff Grant, information technology manager at Network Productions, a talent-management company in Vancouver, British Columbia, also praised the enhanced load balancing and other automated management features in Version 4.0. The server is more reliable than Version 3.0, he said, because Network no longer has to write its own scripts to monitor server activity.

The new application server also links to non-Oracle data,

ORACLE CLIENTS

Oracle's application server is geared to organizations that want to adopt a multithread architecture with thin clients on the front end. Many—but not all—Oracle users are headed that way.

Do you plan on using multi-tier or thin-client computing?



Of those who answered yes:



Base: Survey of 549 Oracle users. March 1998.
Source: International Data Group Inc., Ann Arbor.

and Jared Rodriguez, chief technology officer at Trade/Electronics Commerce System, Inc., a developer of procurement systems in Tampa. One of Trade/Electronics' clients, defense conglomerate Raytheon Co., had more than 20 enterprise resource planning systems to tap, including some from SAP AG, some homegrown and some brought in through acquisition.

But trouble with Version 3.0 has left some users wary.

Brian Gantreau, a database administrator at the Gulf Coast Regional Blood Center in Houston, said Version 3.0 works well in many respects, but "we've had minor problems with the stability. So we will test 4.0 when it's available and make a decision about upgrading based on the results." □

Purchase of Valence may bring scalability to Win NT

By Sharon Gaudin

CORPORATE USERS hope Microsoft Corp.'s purchase last week of Valence Research, Inc. will help the company meet its goal for NT scalability.

The Beaverton, Ore.-based Valence develops TCP/IP load-balancing and fault-tolerance software for Microsoft's Windows NT operating system. Valence's main product is the Convoy Cluster, which connects incoming users to the least busy server in the cluster, speeding the process. It enables 32 servers to be tied together into a single TCP/IP cluster.

Microsoft, which as a result of the purchase will sell the Convoy technology to be used with NT 4.0, plans to integrate it with its clustering technology in upcoming NT 5.0.

"It does sound like this may help," said Isaac Appilbaum, president and CEO of Concord, Calif.-based Concord Solutions, Inc., the information technology arm of Bank of America. "If they could deliver on the promise they keep making about scalability, that would be great. There's only so many times you'll believe and believe and believe."

PROMISES, PROMISES

Microsoft has repeatedly promised users greater NT scalability, but users have seen little in the way of concrete improve-



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ments. Windows NT Server Enterprise Edition generally is considered able to support 10 to 32 processors. Many Unix vendors can offer systems that scale up to 120 processors in one box.

Ed Muth, Microsoft's group product manager for Windows NT, said integrating Valence's Convoy greatly boosts NT's scalability. "We will support tens of thousands of simultaneous users," Muth said.

But Dan Kusnetzky, an analyst at International Data Group in Sarasota, Fla., said buying Valence is a move in the right direction but won't necessarily make NT more scalable. He said that Convoy will disguise the front end of the system, making it look like a single system, but it still will be a group of systems tied together. □

Microsoft seeks tighter link to IT

► TechNet program will offer training, info

By Sharon Gaudin

CORPORATE USERS hope Microsoft Corp.'s new \$40 million effort to offer them expanded support and information will provide a closer link to what has sometimes seemed a distant vendor.

Microsoft last week kicked off its TechNet program, which was designed to connect the company with information technology professionals and offer them more training and information. The three-legged program features a series of periodic, instructional and strategy-focused events in 140 U.S. cities, a new information-oriented World Wide Web site and an expansion of Microsoft's current TechNet CD-ROM series.

"The more we hear from corporate users is that they feel isolated from us," explained Paul

Bazley, Microsoft's general manager of Technical Community Development. "They tell us we do a nice job of telling them why they should buy our products. But they want more information after that."

"It all depends on the level of the seminars they hold. Are they going to be novice or advanced?" said Patrick Ryan, a software engineer at Hobart Corp. in Troy, Ohio. "We're still going to be counting on finding that information ourselves. I've never been able to do it any

other way in the past."

Both the new Web site and the CD-ROMs will offer users technical information such as deployment guides, white papers and troubleshooting information. The Web site also has links to related newsgroups and peer discussion groups. The CD-ROM program, which costs \$299 per year, offers option packs and service packs, as well as some beta software, at a much faster rate than before.

REACHING USERS

The daylong seminars will offer a strategy session in the morning along with information on new products coming down the line. The afternoons will feature break-out sessions drawn along technical lines.

For instance, there might be an electronic-commerce track, an operating system track and a network management track. This program should triple the

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"The entry of Oracle into this market suddenly makes the market more significant," he said.

Users agreed. Jas Dhillion, CEO of Blue-Line Online, Inc., a Palo Alto, Calif., maker of Web-based project management systems for construction giant Bechtel Corp. and Four Seasons Hotels Ltd., said his company's conservative clients demand a blue-chip architecture.

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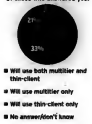
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For instance, there might be an electronic-commerce track, an operating system track and a network management track. This program should triple the

number of seminars Microsoft has been offering and expand them from a few large cities to smaller ones as well. The seminars already have begun. (See www.computerworld.com for more information.)

TechNet is part of a program that Microsoft announced last month (C.W. Aug. 3). In addition to merging the enterprise and service units into one business-oriented group, the company said it would pump \$200-million into corporate-focused service and support programs.

"Short of being a large enough client that you can have Microsoft on site, this is the next best thing you can expect from them," said Bill Peterson, an analyst at International Data Corp. in Framingham, Mass.

"But Microsoft has to be careful to have the right people at these seminars. If the right people aren't there with answers, and [users] don't get follow-up, [the users] will be more frustrated," Peterson said. □

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Freeware phobia wanes

CONTINUED FROM PAGE 1

away for lack of support," he said.

The contrasting viewpoints illustrate how freeware such as Apache and the Linux operating system is being adopted by start-ups in the electronic-commerce field, yet faces resistance from chief information officers at large corporations.

"There's a certain shyness about [freeware] in all but the most entrepreneurial companies, which still have the chutzpah to experiment like that,"

Corp. and Computer Associates International, Inc. announced they would port versions of their databases to Linux.

The announcements placed a spotlight on freeware, which is software developed by a network of volunteer programmers who provide the source code free of charge. And the support of bug-name vendors is starting to reverse the perception that freeware is a geeky cult phenomenon.

Asked if IBM's support for

Donald Morchow, senior vice president and CIO at Highmark Blue Cross/Blue Shield in Pittsburgh, said, "support is certainly a large issue to consider."

"When a CIO makes an [information technology] decision, they want support, not virtual support," said Andrew Allison, an independent industry analyst in Carmel, Calif.

But some users find the free advice and discussion groups on the Internet completely sufficient, and in some instances, superior to standard technical support.

Thomas Schenk, systems administration team leader at DejaNews, Inc., one of the

eration MetroCommuter runs a Web site that tracks up-to-the-minute traffic jams in New York City commuters. Its Web servers receive close to a million hits per month and run entirely on Linux.

"We would have spent more to get a different operating system if we thought that there was a better one for what we do," Lemonides said. "For our purposes, Linux is ideal. We need to generate graphics very quickly — our maps have to be generated on the fly — and our data changes every minute."

Craig McLaughlin, chief technology officer at Pirada, Inc. in San Jose, Calif., called Linux "the only choice" for his company's Internet privacy-assurance business because of its reliability and security features. By having open-source code, "any security flaws are found quickly by the thousands of eyes that look at it," he said.

McLaughlin also said the development community gives him the support he requires. "I'm biased against spending thousands of dollars on an operating system, then spending thousands more on a support contract and then spending hours on hold with someone's tech support," he said.

Having the open-source community work on the software helps eliminate bugs and makes sure it works on a wide variety of platforms. "You just get a tighter product," said Andy Martin, chief technology officer at Austin, Texas-based Garden Escape, Inc., which runs the Garden.com online store.

Mark Mensard, director of operations at CapitalNet Ltd., an Albany, N.Y.-based Internet service provider that has built most of its infrastructure on Linux, agreed. "You don't need an army of people with papers waiting for it to go down," he said. "It just runs. It never drops."

No one knows how many large corporations actually use freeware, in part because some freeware comes in through backdoor channels — under the radar of the CIO, according to the IDC report. Robert Young, CEO of Linux vendor Red Hat Software, Inc. in Research Triangle Park, N.C., claimed that Linux is being used in all of the Fortune 1,000 companies, though not necessarily for mission-critical applications.

Interworking giant Cisco Systems, Inc. is one company that uses Linux to run its network file server, print server and print spooler. Officials at Caldera, Inc., a Linux vendor in

Orem, Utah, said Cendant Corp., a 40,000-employee direct marketer and travel and real-estate franchiser based in Parsippany, N.J., also signed on recently as a Linux user. Cendant declined to comment.

Young said that some public companies are reluctant to acknowledge their use of open-source software. "They're worried that their shareholders might perceive they're taking chances," he said. □

Assistant News Editor Mitch Betts contributed to this report.

Providing comfort

Several vendors have recognized that the key to getting corporate America to warm up to freeware is to offer the kind of CIO-comforting technical support that proprietary vendors do.

So Linux vendors Caldera and Red Hat Software provide the technical support large organizations require, on a per-call basis or for a yearly fee of about \$2,000.

Sandmail, Inc. in Emeryville, Calif. — whose Sandmail freeware is installed on 1.5 million Internet servers and carries close to 75% of all the e-mail delivered — also recently began to offer technical support. Greg Olson, Sandmail's president and CEO, said his company did so "to meet the needs of the commercial majority."

The hurdles for freeware are formidable, Olson said. "We have to help create a shift in the perception that freeware is flaky and counter the perception that it isn't something a CIO can let his job on. That's what we're trying to do by offering support."

But Andrew Allison, an independent industry analyst based in Carmel, Calif., said it will take a much larger service organization, such as IBM, Compaq, Computer Corp. or Hewlett-Packard Co., to offer Linux support (see IBM has with Apache for Linux to really take off).

— Stewart Dock



Garden Escape's Andy Martin says developer support makes Apache "a tighter product"

said Levy, who was promoted from CIO to executive vice president at The Men's Warehouse, Inc., a Houston-based retailer.

"For traditional Fortune 500 corporate America, I don't think [Linux] is going to catch on real soon," said Mary Hubley, an analyst at Garner Group, Inc. in Stamford, Conn. "They love Microsoft and the large vendors because they have the [product] support and it just feels good."

Some resistance may melt away as established vendors increasingly embrace the freeware concept, giving it more respectability. The mainstreaming of freeware is evident in the following recent announcements:

• In March, Netscape Communications Corp. decided to make the source code for its Navigator World Wide Web browser freely available.

• In May, Corel Corp. said that it would make its WordPerfect office applications available on Linux.

• In June, IBM said it will bundle the Apache Web server into its WebSphere applications server and provide technical support for Apache. It's easy to see why: Apache software runs 50% of Web servers on the Internet (see chart).

• In July, Informix Corp. Oracle

Apache gives freeware more credibility in the boardroom. Levy replied: "You bet it does."

Even so, the No. 1 concern of CIOs is how to get technical support for free software that isn't governed by a single vendor. With freeware, support is provided by a loose confederation of developers. Web sites and Usenet newsgroups.

Freeware advocates see that as a strength. When the source code is freely available, anyone is allowed to inspect it, tinker with it, debug it and share improvements with the Internet.

But that scares traditional CIOs. Bill Peterson, an analyst at International Data Corp. (IDC), wrote in a recent report. "There are [information systems] managers who won't even consider Linux because it is not backed by a known name."

Web's largest news providers, said he is a firm believer in support from Linux developers.

"We had been using another PC-based Unix from a commercial vendor and hit a bug," he recalled. "We contacted them for technical support and were basically told that we were not big enough to merit a fix in the time frame that we needed it." Schenk called the ability to contact the developers directly "a huge asset."

Web-based businesses say the button-down crowd's view that freeware is undependable and unsupported is an outdated stereotype. The real reason they're snapping up Apache and Linux is for their reliability.

Evan Lemonides, chief operating officer at MetroCommuter, Inc. in New York, said freeware has become the heart of his op-

Top Web servers in use as of Aug. 1



*National Center for Supercomputing Applications
Source: Internet Lab, Bell Labs

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AVAILABLE.

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Training partnership covers distance

► Trio joins to beef up content, satellite services for corporate learning

By Matt Hunkin

MANAGERS OF THE distance learning programs at Ford Motor Co. and J. C. Penney Co. said they welcomed a new industry partnership that extends the course content and satellite services available to them. Hughes Network Systems, Inc.

But the three will combine on customer deals, with Hughes supplying the satellite network, Apollo supplying training content, and One Touch providing network equipment that allows interactive applications to work. Hughes officials said.

The announcement "marries suppliers that complement each

use training programs offered by Apollo, since the needs for new lecture content are constant and enormous.

Apollo offers distance learning courses in a variety of management and financial planning areas, as well as degree programs.

The company also does custom coursework.

Training courses completed at Ford		
	1997	1998
In classrooms	115,585	63,375
CD-ROM multimedia	34,139	248,144
Fordstar Satellite	740	405,960
TOTAL	150,464	717,499

Source: Ford Motor Co., Learning, Mich.



in Germantown, Md., said it will join with Phoenix-based training provider Apollo Group, Inc. to buy networking vendor One Touch Systems, Inc. in San Jose, Calif.

One Touch will retain its sales and management, and the other two companies will remain independent.

other," said Larry Conley, manager of education and training at Fordstar, a Ford division.

The three "will provide a more dynamic training arena," said Deborah Masten, manager of human resources development at Penney.

Both Masten and Conley said they will investigate whether to

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Ford can beam up to eight live lectures at a time to any of the 6,000 Ford dealerships in the U.S.

Penney, in Plano, Texas, has

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"We went from butts in the seats, barking-and-moaning training, [to] taking those same instructors and putting them in an electronic classroom," Masten said.

LARGER REACH

Analysis said the announcement will give Hughes more reach to maximize and small office markets for satellite learn-

ing and eventually into homes. They said it may be of limited value to large companies that already have satellite networks. Hughes needs to expand its market since the use of satellite networks has declined in the past two years, said Mike King, an analyst at Meta Group, Inc. in Stanford, Calif.

With the recent drop in price of frame-relay networks, global companies have begun to move away from expanding satellite networks, partly to avoid the delay of up to four-tenths of a second for a signal to reach its audience, King added.

That delay is only a problem in more sophisticated applications, but satellite networks can't be beat for their broad global reach, King said. □

Device management goes central

► Vendors turning to multidomain software

By Nancy Dillon

AS STORAGE hardware grows because of applications such as data warehousing and enterprise resource planning, users are turning to centralized device management software to control bloated costs and administration gaps.

"With a large base of installed equipment, unless money is no object, you're not going to be able to visit all of your systems every day. It's just not practical," said Brian Dickson, manager of Unix hardware at Veritas Software, Inc. The Calgary, Alberta-based company helps oil companies find drilling locations.

To pre-empt costly storage-device failures, Dickson uses Web Storage Manager software from Andateco, Inc. in San Diego on his more than 100 SCSI-based Unix RAID arrays. The Internet-based console provides an image map of devices,

hardware health statistics and error notification.

With his two Fibre Channel-based arrays, Dickson uses software called Navisphere, which was announced last week by the Clarion division of Southboro, Mass.-based Data General Corp.

From a central, Windows-based console, Navisphere provides operating statistics on multiprotocol Clarion Fibre Channel arrays. It also can handle error notification, configuration formatting and trend analysis.

"The centralized management makes us more cost-effective because we don't need expertise in every locale," Dickson said.

Storage analysts, such as Mark Nicolette at Stamford, Conn.-based Gartner Group, Inc., said centralized, multidomain device management software is fast becoming a user-required offering for storage vendors. Soon, all of the

products will have Internet graphical user interfaces and will integrate with larger network management frameworks, analysts said.

Software to manage storage

SOFTWARE VENDOR	WEB GUI	PRICE
StarWatch Serial Storage Expert, IBM	Yes	\$15,000 to \$15,000
Navisphere, Clarion	No	Up to \$20,000*
Symmetrix Manager, EMC	No	\$16,500
StorageWorks Command Console, Compaq	No	Up to \$395*

*Offers free version, full version costs more

Although not yet Internet-based, EMC Corp. offers Windows-based Symmetrix Manager software to centrally manage storage devices.

And Compaq Computer Corp. offers the similar StorageWorks Commander Console, which also is Windows-based. Doug Steele, lead information

analyst at Los Angeles-based aircraft contractor Northrop Grumman Corp., helps manage about 40 StorageWorks arrays housing several terabytes.

He recently purchased Command Console 2.0 and plans to implement it soon.

"Right now, we're pretty

per month in configuration planning. 'We won't have' to draw [the configuration] changes on paper anymore."

IBM'S ANSWER

IBM will release its answer to centralized device management, StarWatch Serial Storage Expert, in a few weeks. It will offer one graphical view of IBM serial disk-based configurations and will monitor events, analyze error logs and generate reports.

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Spotts' group recently consolidated all data centers into three megacenters. Now Spotts is charged with consolidating his open systems hardware, the majority of which is IBM serial disk.

He said getting groups to share resources is "always political," so starting the centralization process with StarWatch is meant to ease what he terms "getting the bill through Congress." □

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Top 1997 document management vendors

Total market: \$482.4M

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FileNet Corp. Bellevue, Wash.	5.7%
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* OpenText has since bought Information Dimensions

Source: International Data Corp., Framingham, Mass.

COMPONENTS OF A DOCUMENT MANAGEMENT SYSTEM

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- ▶ **Check-in/checkout** – This is a formalized way to gain access to a document and work on it. It shows other users who is working on the document.
- ▶ **Computer output to laserdisc (COLD)** – A technology for moving computer documents onto a laserdisc.
- ▶ **Document repository** – Same as a database; depends on the implementation.
- ▶ **Optical character recognition and intelligent character recognition** – Converts an image into a searchable/editable document.
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Document management

DEFINITION: Document management is a way for users to organize data, distribute documents and manage the flow of information among users or across organizations. It defines who has access to specific information and determines how data can be viewed. There are two main types of document management systems: Web-based, which uses a browser to access documents, and client/server-based, which uses a network.

Web-savvy users get easy data access

By Sarachi Mohan

USERS ARE DEMANDING access to more applications and begging to keep track of less paper.

A Web-based document management system could help solve those problems. This type of system uses Internet standards and a World Wide Web browser to gain document access and organization.

The main reason people seek the Web for these systems, says Hadley Reynolds, director of research at The Delphi Group in Boston, is that they need the distributed functionality of a document management system instantaneously. In the past year, there has been a large-scale implementation of Web-based systems where historically there were departmental systems.

"The Web is simply the plumbing," says Steve Weinstein, president of Kinetic Information, Inc. in Waltham, Mass. "Because it is so pervasive, it opens the potential for more people [to access applications] but doesn't/shouldn't change document management."

But before you decide to go with a Web-based document management system, ask yourself these two questions: Would a Web-based system work better for our company than a client/server-based one? How high-end a system do we need?

COMFORT ZONE

A Web-based system offers "a handful of advantages" over a traditional client/server-based document management system, says Christina Bertsch, an analyst at The Yankee Group in Boston. The Web-based versions are a lot easier to use because users are already comfortable with browsers, so they don't have to learn yet

another application. If a lot of employees use remote access applications, Bertsch says, Web-based document management makes good sense because distributed client/server systems are harder to maintain than Web servers.

Further, says Arnie White, a senior analyst at International Data Corp. in Framingham, Mass., an Internet-based system is client platform independent and provides cross-platform support. It also is scalable — not only in the enterprise but also beyond it, like when companies provide information on an extranet to their business partners.

AT ISSUE Getting the right size system for your company

Other benefits of a Web-based system include the ability to update documents in real time and get payback in less time because the Web allows more users to access the application. That's because most end users already have Web browsers.

So, how do you evaluate a system? Make sure it integrates easily with your line of business applications and check out the amount of maintenance it requires, White says. For example, a small business with Lotus Notes could use Domino.Doc, which is a low-maintenance, low-functionality system. A company such as The Boeing Co. might want to invest in a high-end, scalable system that can handle huge documents and can be customized, she says.

Another thing to keep in mind is that a document management system requires a webmaster-type person to maintain it — and that could mean adding a person to your staff, says John Mancini, president of the Association for Information and Image Management International, a group of industry vendors and users in Silver Spring, Md. □

Mohan is a freelance writer in Los Altos, Calif.

What platform do you use for your document management system?

Base: 350 document management system users

Source: The Delphi Group, Boston



- Client/server and the Web
- Full client/server
- The Web
- Groupware
- Peer-to-peer LAN/Workgroup
- Other

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Training partnership covers distance

► Trio joins to beef up content, satellite services for corporate learning

By Matt Humblen

MANAGERS of the distance learning programs at Ford Motor Co. and J. C. Penney Co. said they welcomed a new industry partnership that extends the course content and satellite services available to them. Hughes Network Systems, Inc.,

But the three will combine on customer deals, with Hughes supplying the satellite network, Apollo supplying training content, and One Touch providing network equipment that allows interactive applications to work. Hughes officials said.

The announcement "marries supplies that complement each

use training programs offered by Apollo, since the needs for new lecture content are constant and enormous.

Apollo offers distance learning courses in a variety of management and financial planning areas, as well as design programs.

The company also does custom course-work.

PAID FOR ITSELF

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Training courses completed at Ford

	1994	1997
In classrooms	115,585	63,375
CD-ROM multimedia	34,139	248,144
Fordstar Satellite	740	405,980
TOTAL	150,464	717,499

Source: Ford Motor Co., Learning Net

used One Touch equipment since 1996 to create interactive training of sales personnel and other workers in 1,100 stores, using an existing satellite network it put in place in the 1980s.

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With One Touch, "We went from brick-and-mortar training into an electronic classroom."

PENNEY
BY JOHN MASTERS



in Germantown, Md., said it will join with Phoenix-based training provider Apollo Group, Inc., to buy networking vendor One Touch Systems, Inc. in San Jose, Calif.

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manager [device management] with visual methods, meaning operators on each of my three shifts go around and visually look at each enclosure," Steele said.

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per month in configuration planning. "We won't have to draw the [configuration] changes on paper anymore."

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You want an OS that's secure and manageable. Your users want an OS that's fast and reliable.

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It's no secret that we've just launched a great new operating system, Windows[®] 98. However, Windows 98 is optimized for home use. In most cases, Microsoft[®] Windows NT[®] Workstation 4.0 is the right OS for your new business PCs. Here's why:

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Windows NT Workstation is 26%^{*} faster than Windows 98 (it's also faster than Windows 95, for that matter). So everybody, including you, gets more done.

Windows NT Workstation is the right OS for all of your business users. So when you buy new business PCs, be sure to order them with Windows NT Workstation.



Windows NT
Workstation 4.0

*Performance testing conducted by National Software Testing Laboratories, Inc. (NSTL) in June, 1998, using Windows[®] 98 developed by 395 Data Benchmark Operation (395Data) versus a variety of computers with 33 and 66 megabytes of memory. Tests performed independently by NSTL, without independent verification by 395 Data. 395 Data makes no representation or warranties. Windows is a registered trademark of Microsoft Corporation. © 1998 Microsoft Corporation. All rights reserved.





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More happy people.

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The result: one OS, the business OS, on all of your new PCs.



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OPINION

Attitude adjustment

Microsoft is making strides in its attitude toward corporate customers. Now it should go a step further and fully bless the formation of an independent Windows NT user group.

In 15 years of covering Microsoft, I've seen the company make halting progress in its approach to corporate IT. From an attitude of thinly disguised hostility in the late 1980s to lip service a few years back, Microsoft today looks more serious than ever about listening to enterprise users.

During my recent visit to Microsoft, officials talked about things I had never heard before: an ongoing project to develop interfaces for shop floor devices, a plan to train 2 million corporate IT professionals in Microsoft Back Office and the strategic importance of ERP software to the company's future. They also talked about moderating Microsoft's often hard-line

stance on religious issues such as thin clients and multipatform middleware because large customers were asking them to do so. "If [CIOs have] got 200 administrative assistants who can run off of... a server,

then that's what they ought to do, and it's up to us to have tools that enable that," said Bob Herbold, a silver-haired ex-CIO who is Microsoft's chief operations officer — and clearly its lead corporate IT advocate. Such conciliatory talk would have been unheard of a couple of years back (see www.computerworld.com for my interview of Herbold).

Microsoft's embrace of SAP as its corporate financial engine, its move to remake its data center into a test bed of the company's own technologies and the relentless preaching of executives such as Herbold is what's changing the company's attitude toward large enterprises. Now Microsoft should go the next step and help its NT customers form a national user group. As our front-page story points out, NT users are frustrated by their inability to gather in one place and swap tricks, facts and war stories.

There's no substitute for the face-to-face contact of a national meeting. Oracle, SAP, IBM, Computer Associates and many others support independent or subsidized user groups. Microsoft could go a long way toward affirming its commitment to enterprise customers by doing the same.

Paul Gilin

Paul Gilin, editor in chief
Internet: paul_gilin@cw.com

I agree—it would definitely get this issue off our backs, but there doesn't seem to be any way we can call in an air strike anywhere.



LETTERS

Internet graphics do not an education make

Kids, technology and the schools

Don Tapscott

I have become fashionable to say that computers in education are a bust. In just one example, an Atlantic Monthly cover story deems spending money on computers in the classroom "misplaced."

And indeed, some implementation is in progress with several million dollars in the field — in many schools the "misplaced" quality of learning that dominates the schools.

But in examining schools that are doing it right, we find that the use of computers is not the magic bullet. The key is in the teacher. The teacher is the one who is making the difference. The teacher is the one who is making the difference. The teacher is the one who is making the difference.

The new media can positively change the role of teacher.

James Cameron is an accomplished filmmaker and a pioneer in the use of computers in education. He is the author of "The Future of the Movie" and "The Future of the Teacher."

... sending information graphically will induce learning. The focus of education must be the development or training of the mind, capabilities or character — not the ability to write Java applets.

The last thing we need is grade schools producing multimedia marketing wizards and labeling these shallow skills as advanced education.

John Stroiker

Boston

john_stroiker@gillette.com

COMPUTERWORLD columnist Don Tapscott's drivel about kids and technology ("Kids, technology and the schools," July 6) is truly depressing.

He has obviously spent far too much time at software vendor slide shows marveling at the brilliant colorful graphics while not being bothered about lack of content.

Tapscott seems to feel that if kids can learn to link Web pages, project "cool facts" on the wall and include video clips in a presentation, this exercise will accomplish an important learning process.

I am amazed that some individuals feel that any problems in education can be solved by dumping copious amounts of Internet-supplied information onto students or that merely pre-

Tell the full story

I'M WRITING about Bill Labeis' column — "Recentralization: Breaking the news" [CW, June 29]. He uses the phrase, "as convoluted and arcane as mainframes."

This is a typical statement in a trade press now largely dedicated to promoting PCs, LANs, client/server, Internet, etc. With more than 30 years' experience in IT, I take strong exception to it.

There are applications and business situations that lead themselves to decentralized platforms, just as there are those that are best suited to a centralized model. Labeis implies that other decentralized operating systems are good by comparison. Nothing could be further from the truth. When objective technicians "peel back the covers," they will find that mainframe operating systems are well-organized, secure, fast and highly reliable — something I cannot say for most distributed systems. If you are going to have staff or guest writers make comments based on technical comparisons, I suggest you ensure the full story is told.

Lowell Harrison

Richmond, Va.
lowell_harrison@mpower.com

IN THE July 6 issue of Computerworld, columnist Don Tapscott wrote that in advanced schools, "the teacher isn't a broadcaster of information to students viewed as empty vessels."

Indeed. And in less advanced schools where the teachers' best efforts are sometimes to no avail, teaching can seem "feudal."

Len Tobak
Associate professor
of computer science
Cornell College
Mount Vernon, Iowa
ltobak@iaw.org

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to MaryAnn Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Stuck in the Age of Acquire-Us

David S. and Kathryn A. K. Clarke

The customer is taking over. Don Peppers and Martha Rogers followed their successful book, *One to One Marketing*, with *Enterprise One to One*, which claims that the enterprise that focuses on the individual customer has an insurmountable competitive advantage.

Venture capitalist Regis McKenna's tome, *Real Time*, extols the value of interactive connections to customers. *Computerworld* recently (Aug. 10) devoted a special report to customer relations. All the pundits forecast a tiny future: Use information technology to reach your customers and watch the money roll in. The Age of the Customer is here.

We eagerly await this era, mostly because it's in direct contrast with our personal experience as consumers. We are stuck in the Age of Acquire-Us. Every day, offers come in from credit-card companies, long-distance carriers, insurance companies and others trying to steal our business away from the other

We're sick of being courted when we aren't customers and ignored when we are.

guy. That other guy apparently doesn't care about our business because he doesn't seem to know we're alive until we've switched to his competitor.

Then we become valuable commodities — we are potential customers! We secretly suspect that a person could go

years without paying a long-distance phone bill or interest on a credit card by switching from one company to the next.

This ping-pong game irritates us. We're sick of being courted when we aren't customers and ignored when we are. We want recognition as existing customers. The more we use a service, the more recognition we want. Not phone calls during dinner, but discounts and personal service. And we aren't alone in our annoyance. A totally unscientific poll of friends, neighbors and associates shows great irritation with these issues.

Peppers and Rogers build a case for achieving greater success by increasing business from existing customers. They ask why "so many firms concentrate so heavily on trying to figure out which new prospects to turn into customers, when they could so easily turn such a high profit by keeping the customers they have for a longer period?" The Romans knew this, as evidenced by the proverb: "No gain is so certain as that which proceeds from the economical use of what you already have."

In the past, customer relationships were the responsibility of marketing or customer service. Today, the CIO may be the person best positioned to advise the organization on customer interaction.

A good CIO knows technology, works across organizational boundaries and understands communication and computing trends. As integrators and functions become more integrated and, as enterprises become more accessible to their customers, IT plays an increasingly important role. In the Age of the Customer, the CIO can orchestrate the critical task of connecting the consumer to the company. The CIO has the opportunity to become the customer's advocate — the Customer Interaction Officer.

In *The 500 Year Debit*, Ben Taylor and Watts Wacker state, "The great reality of the marketplace is... nobody who produces is in control. Nobody who sells is in control. If you build it, they will come only if they want to, and if they decide to leave, there is nothing... that can stop them." In other words, the customers are in control. We advocate that approach — particularly when we are the customers. Here's to the dawning of the Age of Acquire-Us and to the true rise of the Age of the Customer. □

David S. Clarke is information officer at General Motors Corp.'s North American Operations Midsize/Luxury Car Group. Kathryn A. K. Clarke is a writer and freelance engineer. They live in Rochester, N.Y. Their Internet address is kklark@sat.com.

Keeping pace with the 'net's astonishing growth

John Gantz

For years now, International Data Corp. has generated an admittedly less-than-bulletproof forecast of the number of URLs on the Web.

In antiquity, IDC (my employer) could get occasional fires on its forecast from the major search engine companies, but now everybody seems to have given up trying to count total pages on the Web. Nobody can see the whole thing at once.

We figure the Internet now supports more than 700 million pages. To a few years, the total will be 10 times that. According to Vinton Cerf, speaking at the Internet Society's annual meeting last month, the number of 'net connections will exceed phone connections by the middle of the next decade. My own forecasts put a billion devices on the Internet by 2004. By then, the overall 'net economy will be pushing 5% of the world's gross domestic product.

So, as soon as the IT world gets a hammerlock on the year 2000 problem, we'll face another one: a wired market growing like a weed.

There's bound to be pain involved.

Merely dealing with the traffic will be one issue. According to my calculations, Internet traffic is already 1% of the world's total voice and data traffic. In five years, it will be almost 20% — a whopping 2,000 terabits a day. We may have the wires and fiber circuits in place to handle all that, but I doubt we have all the switches, routers and software to handle peak loads and traffic jams at key junctions. I also doubt that most IS directors realize how much they'll have to worry about network performance in years to come. Or how much disk capacity they'll buy.

And with so many new users coming to the Internet, the neighborhood is bound to go downhill. Extrapolating from U.S. crime statistics, I once figured that by the year 2002, there will be nearly 10

million crooks on the Web. That means multiple millions of nefarious events (those perpetrated on other 'net users and those that use the medium to con or scam those who aren't 'netizens). Given the law of averages, some Internet criminals will be quite sophisticated. Good luck to the average auditor, prosecutor, FBI agent — or IS director — trying to fight this crime.

That growth also means that the Internet will be harder to understand. It will metastasize and mutate beyond recognition. The Internet Society, which has gone through at least one transformation already, is discovering that now as it heads for another. There are at least three separate

plans for a next-generation Internet, domain name management is under fire and the job of setting standards has passed from an official Internet Engineering Task Force committee to vendors in the market. The 'net, once a federation of networks governed by common protocols and understood at least by a few, is now unknowable in its entirety.

And that, folks, is the milieu in which we will manage our computers, our applications and our networks. The Internet will become a stew of probability states: something you can use, like quantum mechanics, but not really understood. If the efforts of companies such as Sun — with its push for Java and now Jini — bear fruit, the 'net will become the mysterious backlight for a giant worldwide computer that we will all time-share.

The best we can do as the Internet takes us places we've never been is to keep our all-too-little house in order. □

Gantz is senior vice president at IDC in Framingham, Mass. His Internet address is jgantz@idcresearch.com.

Few in IS realize how much they'll worry about network performance in years to come.

What you can learn from the portals

Walid Mougyar

The top Web portals have done an incredible job aggregating information and services they don't even own.

In contrast, most Fortune 1,000 companies own a wealth of information but have done a poor job aggregating it on the Web for their customers and trading partners. It's time to learn from the Web portals the lessons that apply to other corporations.

Aggregation. This is a core competency of portals, one from which other firms can learn the most. Portals started as Web directories or search engines. They've extended this model by integrating, aggregating and repurposing a plethora of information services they don't necessarily own, as well as introducing new services based on existing ones. Yahoo Classifieds alone provides listings from Apartments.com, Cyberhomes, Homes and Land, NewHomeSearch.com, Owners.com, Re/Max, RentNet, The Real Estate Book and others. Excite has combined its classified

Internet brands are splashing their names and messages around the real world.

section with an auction component. **Electronic customer loyalty.** The top 10 portals receive an average of 14 million unique visitors per month, according to Relevant Knowledge's July survey. That's a sign of customer loyalty. Most large companies dream of even 5 million unique visitors per month. Portals earned customer loyalty because they understood that content drives customer retention; they've mastered the transition from content sites to electronic consumer communities. If, for example, you rely on a portal to maintain your financial portfolio, that company owns a piece of your interest. You migrate to the site time and again.

Virtual partnerships. Virtual partnerships are assembled and implemented almost at a moment's notice. There's a feeding frenzy to make the whole online world larger, benefiting all participants.

As an example, Netscape's new online strategy hinges on a variety of virtual relationships.

Content syndication. Syndicating your aggregated content is the ultimate test of market acceptance and reach. Any company should find ways to syndicate high-value content to any of its electronic business community members. This could be sharing inventory levels, production information, customer satisfaction results or any information that could be reused for other purposes.

Co-branding. The Internet is full of co-branding deals. For example, Excite and Children's Television Workshop created a co-branded area for Webcrawler's Kids & Family Channel. Nonportal companies are picking up on the trend, but slowly. The digital brand, portals are redefining it. Whereas existing brands are struggling to extend their reach to the Internet, net brands are bursting into traditional media and physical locations to splash their names around the real world. Yahoo Gear merchandise is avail-

able in more than 130 retail outlets. Even multinational Unilever, with its panopoly of traditional brand power, is becoming a prominent tenant on AOL, further validating the digital brand imperative.

Organizational models. Most employees in portal companies are involved in the research, development, manipulation, production and presentation of information. Because most Fortune 1,000 companies are heavily dependent on physical products and process, this makes half their workforce obsolete. Of course, this isn't an apples-to-apples comparison, but atom-based companies are finding themselves competing increasingly with bit-based companies that have an organizational structure advantage — a fact of the new economy.

The main Web page. God bless the home page! That page still says it all, and the first impression is long-lasting. Every portal's home page has many functions ready to be activated. At best, most large companies offer only a handful of functions. □

Mougyar is author of *Opening Digital Markets* (McGraw-Hill, 1995) and president of CyberManagement, Inc., a management consulting firm. His Internet address is walid@cyberm.com.

Waiting for the real selling revolution

David Moschella

By popular — and Wall Street — consensus, Amazon.com, CDNow, Peapod and similar offerings have become signature examples of the power of online retailing. But to me, these companies are only the forerunners of the real retail revolution yet to come.

Today, the focus is on how the Web affects traditional retail stores. In the long run, the big story will be the Web's ability to create retailers where there has been none before.

To see why, look at today's trendsetters. Amazon.com is certainly a useful service, but it has hardly revolutionized my book-buying. Between the two of us, my wife and I buy at least a half dozen books per month — but we pretty much use Amazon only when we think something will be hard to find. Even then, for really obscure works, the Boston Public Library has had a much higher hit rate. Unless you live in a remote area or find getting out difficult, Amazon is just a nice, additional option.

A similar perspective could be applied

to CDs, travel planning, stocks and groceries. My local Tower Records store already has pretty much every CD I'm interested in. Unless you're an active stock trader, telephone and mail do a pretty good job of managing the typical set of consumer mutual funds. And as one who travels a lot, I still haven't found any compelling reason to make my own reservations. Again, these services are nice, but ancillary.

It would be more useful to me if the Web could bring the real retail experience to new areas. As someone who works independently, I would like to be able to go to an online health insurance store where I

could check out what various companies offer to meet my needs. Doing comparisons today is basically torture. Similarly, I could use Web sites to compare car insurers and rates, mortgages, hotels, restaurants, car rental agencies — even telephone services. All of these would be much more useful than ordering groceries or accessing L. L. Bean.

But perhaps more important, the emergence of these stores will likely have a much more profound impact on their existing industries than anything resulting from today's Web retailers. Insurance companies, banks and health care providers are all used to dealing directly with their own customers. All have benefited greatly from the ability to build a high level of familiarity — and inertia, which tends

to raise consumer switching costs. When was the last time you changed your car insurance company?

A retail environment could fundamentally change that. Certainly, direct price and service comparisons would become far easier to compile. But just as important, retailers impose their own pressures on suppliers in areas that are the virtual equivalents of shelf space, inventory, discounts, bundling, introductory offers, service and so on.

Selling through a retailer has always been fundamentally different and generally more efficient than selling direct. The point that people tend to miss is that retail stores exist because they provide real value. Though many Web pundits talk of retail as an inherently wasteful thing — one the Web had best get rid of — the next generation of Web entrepreneurs will bring a far different perspective. To them, retail stores are great for consumers. The big question is how to create more of them. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. His Internet address is dmoschella@earthlink.net.

Today's pundits think retail is wasteful, but future Web entrepreneurs will embrace it.

Corporate Strategies

Case Studies • Trends • Outsourcing

Briefs

Business process software pays off



STUDY

Financial Web sites provide little real value

By Thomas Hoffman

ALTHOUGH THE TOP 25 commercial U.S. banks currently have more than 1,000 Internet initiatives under way, most projects are falling short of delivering real business value, according to a recent study. The study, of more than 250 bank, insurance and brokerage industry Web sites, was conducted by Cambridge, Mass.-based MainSpring Communications, Inc.

It found that many companies overestimate short-term cost savings and fail to block out clearly defined business strategies behind their World Wide Web projects.

"It's this trap about how easy it is to put up a Web site and how difficult it is to imagine ahead of time what business issues" might crop up because of competitive pressures, said Patricia McGinnis, managing director of financial services at MainSpring.

By April Jacobs

WHEN Green Mountain Coffee, Inc. went shopping last year for software to run its retail and wholesale coffee business, it bet on PeopleSoft, Inc.'s then-new business process software. A little more than a year later, the

company says it was more than a good call.

Green Mountain handles its manufacturing, distribution and financials using Pleasanton, Calif.-based PeopleSoft's software modules. What's more, the Waterbury, Vt., coffee company is now working with PeopleSoft to develop a business-to-consumer electronic-commerce application it hopes will allow it to do business online.

Green Mountain Chief Information Officer Jim Prevost said the new software

makes interacting with suppliers and managing a string of distribution centers more efficient. It lets the company do things such as bar-code packages in its order fulfillment operation — which saves time on order checking and increases accuracy — preventing returns and reshipments.

And the online inventory tracking system the company now has in place makes it eas-

ier to match orders with products in stock. Under its old system, that process had to be done manually.

CEO Robert Stiller said he sees the project as not only a way of meeting immediate needs, but also of providing for future ones.

"The return on investment is much more of a long-term thing. You have to be able to manage the processes well enough in the future to be competitive," Stiller said. "We couldn't do it with the other

software we had, and we are still refining what we have, but we are very big on activity-based orientation. We wanted a system that would incorporate that."

"I equate the change of computer systems to a brain transplant," Prevost said. "Everyone around here has the need to be connected to and touch a computer to get their job done."

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"I equate the change of computer systems to a brain transplant."

— Jim Prevost, Green Mountain

Oreos & coffee just don't cut it

Programmers prone to bad habits, with poor results

By Julia King

LOOK AROUND ANYPLACE where software is being developed, and chances are good you'll find across more than a few empty pizza boxes and Big Mac wrappers, a fridge full of soda and a never-empty pot of lukewarm, high-test coffee.

Computer professionals seem to accept eating terribly as part of getting information technology projects out the door on time. "A lot of people from high-tech feel that stopping for even 10 minutes is downtime they can't afford," said Keith Klein, a nutritionist at the Institute of Eating Management in Houston. When Klein

was a keynote speaker at a recent IT project management conference, more than 100 IT professionals turned out to hear him.

Klein said IT professionals munch on chips, Oreos and whatever else they can grab quickly from a nearby vending machine, usually washing it down with a caffeinated soft drink. They do this to save time and be more productive.

But the upshot, according to experts, is usually a decrease in productivity, rather than an increase. Weight gain, lethargy, irritability and loss of morale are also typical.

Just ask Tim Rieger, 46, a sales support manager at Compaq.

Oreos & coffee, page 37



Average completion rate of IT projects

PLANNED PROJECT LENGTH	CHANCE OF COMPLETION
30 days or less	82%
30 to 90 days	67%
90 to 360 days	68%
Greater than 360 days	54%

Source: Survey of 1,500 executives
Conducted by The Analyst Group, Madison, Wis.

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Corporate Strategies

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Briefs

Railroad changes

Union Pacific Corp.'s recent decision to decentralize its railroad management structure to help alleviate traffic congestion in the Southwest is leading the company's information systems organization to "re-align" its technical field support, said Chief Information Officer Joyce M. Wrenn. Union Pacific's operations, which had been highly centralized, will be spread out among three geographic regions. Wrenn said she and her team are examining what, if any, changes have to be made to the Dallas-based company's IT technology to support the new structure.



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SAP R/3 contract

Sebastian International, Inc., a maker of help and skin care products, has signed a two-year contract for SAP R/3 outsourcing services from Plant Consulting, Inc. The system will reside at Sebastian's headquarters in Woodland Hills, Calif., but Plant will handle all aspects of its operation from its Wellesley, Mass., office.

Health care Y2K plans

Science Applications International Corp. in San Diego has signed contracts to provide year 2000 remediation services to Children's Hospital in Oakland, Calif.; Baptist Health System in San Antonio; and Bee Securus Health System in Marietta, Ga.

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Source: The Health Care, Boston, Mass.

Business process software pays off



Photo: Green Mountain

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But the upside, according to experts, is usually a decrease in productivity, rather than an increase. Weight gain, lethargy, irritability and loss of muscle tone are also typical. Just ask Tim Bigler, 36, a sales support manager at Compaq.

Oreos & coffee, page 37



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Compaq's Tim Bigler, before and after, deciding to change his eating habits

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Oreos & coffee

CONTINUED FROM PAGE 33

Computer Corp. In February, Bigler, who is 5 feet, 11 inches tall, tipped the scales at 214 pounds, of which 54 pounds was pure body fat.

Between working 10-hour days and attending software classes at night, Bigler, who is single, said he rarely, if ever, cooked. Instead, he consumed mainly fast-food burgers or chicken sandwiches, frozen pizzas and plenty of Coke.

"In this environment, you're basically tied to a chair and a computer. You're also constantly running some kind of fire drill," Bigler said. "You sit at a com-

puter, you're going to gain weight."

A friend recommended to Bigler that he see Klein, who set him on a program of eating a wide variety of healthy, nutritious food. Sticking to the program required several of the same project management skills — such as planning and documentation — that Bigler uses in his work.

Now, for example, on Saturday or Sunday, Bigler plans, shops for and prepares a week's worth of meals, including tuna salad and turkey meatloaf, which he carries to work each day in a cooler. He typically eats six meals, for a total of 1,800 to 2,500 calories daily. In between those meals, he drinks protein shakes, store-bought "concentrations" containing high levels of protein and carbohydrates.

After eating that way for six months plus lifting weights for 45 minutes three times per week, Bigler's weight is down to 194 pounds, of which 14 pounds is fat.

His waist is three inches smaller.

"I've also noticed a difference in that I'm more alert and not as grumpy," he said.

And none of it had to do with willpower.

In fact, even the weakest-willed software developer can succeed in eating more healthily, Klein said. "This whole thing has nothing to do with

willpower but with understanding your high-risk situations," he said.

For example, "if you know you have a project team meeting that will last all morning, eat early so you're not ravenous" and reach for the nearest fast-food sandwich when the meeting breaks, he advised.

"When you're working on projects, plan ahead and forecast what you have coming up," Klein said.

Weight Watchers International, Inc. also recommends planning what you eat, which should include at least five servings of fruits and vegetables daily. Other tips include the following:

- Drink plenty of water.
- Carry your own meals to work. Don't rely on corporate cafeterias, which tend to offer high-fat fast foods or foods that are nutritious but bland and unappealing when cooked for the masses.
- Write down what you eat.
- Don't eat at your computer. Designate a place to sit down, take a break and eat a meal.
- Last but not least, "begin by making better 'bad' choices," Klein said. "If you used to snack on Haagen-Dazs, go with fat-free ice cream. Instead of fries, get a baked potato. That way, you're still eating the same types of food, but they're lower in calories." □

MORE ONLINE

For online resources on nutrition and dietary health, visit Computerworld.com/oreos



"Begin by making better 'bad' choices," Klein said.

APC diet

One way to plan ahead for nutritious meals is to do it on your computer, using any of a variety of PC-based nutrition programs.

One such program, Dietmaster 2000, functions like an electronic nutrition counselor, taking users the same questions a live counselor such as the Institute of Eating Management's Keith Klein would ask. The program then works up a suggested meal plan from a database of some 12,000 different foods.

"The program tracks what you should be eating in carbohydrates, calories and fats against what you're actually eating and compares the two side by side. So you can actually see where you're blowing it," said John Schiera, a former programmer and now president and CEO of Lifestyle Technologies, Inc. in Golden, Colo. — Julia King

Business process software

CONTINUED FROM PAGE 33

The company is also about to undergo some changes in its business, because though it began in 1981 as a retail operation, more than 90% of its business now results from mail order and wholesale.

Next month, Green Mountain will begin closing down or selling its retail-based stores to focus on its burgeoning mail order and wholesale businesses.

That's also why it wants to focus on consumer online business, believing that will be as successful as mail order has

been because it provides an added level of convenience to potential customers.

The project cost about \$1.5 million, *ICW*, May 8.

But considerable growth — which has averaged about 30% per year for the past five years, according to Previo — made the switch from the company's aging, DOS-based systems a necessity. That was especially true because vital business applications were unreliable over the wide-area network connections that supplied critical data

to distribution centers.

The company also intends to increase its use of electronic data interchange (EDI) technology, which will allow it to deal with large customers and its own suppliers more efficiently.

In fact, some large potential customers will deal only with suppliers that use EDI for order and payment.

"We're hoping this will make it easier to deal with some large grocery chains, as well as our own supply and distribution chain," Previo said.

"It would also allow us to work with our suppliers for our forecasting and purchasing," he added. □

DIAL-UP STILL PREVAILS

Most of the top 10 banks that serve small-businesses still depend on dial-up electronic banking services

- Offer proprietary dial-up services only to small-business customers
- Offer both Internet and proprietary services
- Offer no electronic services



Source: "The State of Internet Banking," July/August 1992, Mainpring Communications, Inc., Cambridge, Mass.

Web sites fall short

CONTINUED FROM PAGE 33

For example, one of the insurance companies that Mainpring examined set up a Web site designed to help physicians send their health care claims electronically. The company expected to substantially reduce claims processing costs by cutting down the number of hands the claims had to pass through.

But the insurer missed the fact that most doctors lack Internet service or even modems. As a result, the insurer had to offer physicians a "bounty" of \$5 per claim processed through the Web to push up the adoption rate, thus making the Internet "more expensive than the old channel," McGinnis said.

To avoid those types of "gotchas," Mainpring recommends keeping a close eye on customer acquisition costs, identifying gaps in service before customers do and applying conservative cost-savings estimates — especially for volume-dependent applications.

For example, many Web sites are started as marketing initiatives with the goal of generating low-cost sales leads. The costs of Web-based advertising, content production and site creation are rising. Combined with the relatively small number of active customers, the cost to attract customers often "far outweighs the present net value of the customer relationship," Mainpring reported.

One company that plans to walk before it runs is Metropolitan Life Insurance Co. The New York-based insurer is developing a site that will provide 401(k) retirement benefits information to its employees first, followed by external customers.

Employees will gain access to the site before year's end and give feedback on features and security before the site is made available to outside customers early next year, said Jim Klinck, vice president of application de-

velopment at Met Life.

The site will offer "classic business value" to Met Life and its employees, Klinck said, because employees will get immediate access to their 401(k) plans and can quickly move funds or change asset allocations, he added.

Some Web projects succeed because someone recognized and acted on a niche opportunity in a specific market. For example, DMR Consulting Group in Toronto is working with Ceres, Inc. to develop electronic certificates of insurance. These are used to assure, say, a building tenant that a contractor has liability and workers' compensation insurance in case someone gets hurt during office reconstruction.

Subcontractors and risk managers typically need access to such certificates. And contractors often have one insurer for liability and another for workers' compensation. □

Features of Insurers' Web sites

Marketing and promotions	100%
Electronic gathering of potential prospects	95%
Online price quotes	47%
Online tools (calculators, e.g.)	16%

Source: Survey of more than 100 insurance agent Web sites.

Source: "The State of Internet Banking," July/August 1992, Mainpring Communications, Inc., Cambridge, Mass.



Employee-benefits Web site will provide "classic business value"

Oreos & coffee

CONTINUED FROM PAGE 33

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A friend recommended to Bigler that he see Klein, who set him on a program of eating a wide variety of healthy, nutritious food. Shaking to the program requires several of the same protein management skills — such as planning and documentation — that Bigler uses in his work.

Now, for example, on Saturday or Sunday, Bigler plans, shops for and prepares a week's worth of meals, including tuna salad and turkey meatloafs, which he carries to work each day in a cooler. He typically eats six meals, for a total of 1,800 to 2,000 calories daily in between those meals. He drinks protein shakes, store-bought concoctions containing high levels of protein and carbohydrates.

After eating that way for six months plus lifting weights for 45 minutes three times per week, Bigler's weight is down to 194 pounds, of which 14 pounds is fat.

His waist is three inches smaller.

"I've also noticed a difference in that I'm more alert and not as grumpy," he said.

And none of it had to do with willpower.

In fact, even the weakest-willed software developer can succeed in eating more healthily, Klein said. "This whole thing has nothing to do with

willpower but with understanding your high-risk situations," he said.

For example, "if you know you have a project team meeting that will last all morning, eat earlier, so you're not ravenous" and reach for the nearest fast-food sandwich when the meeting breaks, he advised.

"When you're working on projects, plan ahead and forecast what you have coming up," Klein said.

Weight Watchers International, Inc. also recommends planning what you eat, which should include at least five servings of fruits and vegetables daily.

Other tips include the following:

- Drink plenty of water.
- Carry your own meals to work. Don't rely on corporate cafeterias, which tend to offer high-fat fast foods or foods that are nutritious but bland and unappealing when cooked for the masses.
- Write down what you eat.
- Don't eat at your computer. Designate a place to sit down, take a break and eat a meal.

Last but not least, "begin by making better 'bad' choices," Klein said. "If you used to snack on Haagen-Daaz, go with fat-free ice cream. Instead of fries, get a baked potato. That way, you're still eating the same types of food, but they're lower in calories." □



Eating Management
Keith Klein

DIAL-UP STILL PREVAILS

Most of the top 100 banks that serve small businesses still depend on dial-up electronic banking services

- Offer proprietary dial-up services only to small-business customers
- Offer both Internet and proprietary services
- Offer no electronic services



Source: "The State of Internet Banking," JPMorgan Chase, 1998. Reprinted with permission, J.P. Morgan Chase Bank.

Web sites fall short

CONTINUED FROM PAGE 33

For example, one of the insurance companies that MainSpring examined sent up a Web site designed to help physicians send their health care claims electronically. The company expected to substantially reduce claim processing costs by cutting down the number of hands the claims had to pass through.

But the insurer missed the fact that most doctors lack Internet service or even modems. As a result, the insurer had to offer physicians a "boutique" of \$1 per claim processed through the Web to push up the adoption rate, thus making the Internet "more expensive than the old channel," McGinnis said.

To avoid those types of "gotchas," MainSpring recommends keeping a close eye on customer acquisition costs, identifying gaps in service before customers do and applying conservative cost-savings estimates — especially for volume-dependent applications.

For example, many Web sites are started as marketing initiatives with the goal of generating low-cost sales leads. The costs of Web-based advertising, content production and site creation are rising. Combined with the relatively small number of active customers, the cost to attract customers often "far outweighs the present net value of the customer relationship," MainSpring reported.

One company that plans to walk before it runs is Metropolitan Life Insurance Co. The New York-based insurer is developing a site that will provide 401(k) retirement benefits information to its employees first, followed by external customers.

Employees will gain access to the site before year's end and give feedback on features and security before the site is made available to outside customers early next year, said Jim Klinck, vice president of application de-

velopment at Met Life.

The site will offer "classic business value" to Met Life and its employees, Klinck said, because employees will get immediate access to their 401(k) plans and can quickly move funds or change asset allocations, he added.

Some Web projects succeed because someone recognized and acted on a niche opportunity in a specific market. For example, DMR Consulting Group in Toronto is working with Cebra, Inc. to develop electronic certificates of insurance. These are used to assure, say, a building tenant that a contractor has liability and workers' compensation insurance in case someone gets hurt during office reconstruction.

Subcontractors and risk managers typically need access to such certificates. And contractors often have one insurer for liability and another for workers' compensation. □



Eating Management
Keith Klein

A PC diet

One way to plan ahead for nutritious meals is to do it on your computer, using any of a variety of PC-based nutrition programs.

One such program, Dietmaster 2000, functions like an electronic nutrition counselor, asking users the same questions a live counselor such as the Institute of Eating Management's Keith Klein would ask. The program then works up a suggested meal plan from a database of some 12,000 different foods.

"The program tracks what you should be eating in carbohydrates, calories and fats against what you're actually eating and compares the two side by side. So you can actually see where you're blowing it," said John Schira, a former programmer and now president and CEO of Lifesystems Technologies, Inc. in Golden, Colo. — Julia King

MORE ONLINE

For online resources on nutrition and dietary health, visit Computerworld.com/nutrition

www.computerworld.com/nutrition

Business process software

CONTINUED FROM PAGE 33

The company is also about to undergo some changes in its business, because though it began in 1981 as a retail operation, more than 90% of its business now results from mail order and wholesale.

Next month, Green Mountain will begin closing down or selling its retail-brand stores to focus on its burgeoning mail order and wholesale businesses.

That's also why it wants to focus on consumer online business, believing that will be as successful as mail order has

been because it provides an added level of convenience to potential customers.

The project cost about \$1.5 million, [C.W. May 8]

But considerable growth — which has averaged about 30% per year for the past five years, according to Prevo — made the switch from the company's aging, DOS-based systems a necessity. That was especially true because vital business applications were unreliable over the wide-area network connections that supplied critical data

to distribution centers.

The company also intends to increase its use of electronic data interchange (EDI) technology, which will allow it to deal with large customers and its own suppliers more efficiently.

In fact, some large potential customers will deal only with suppliers that use EDI for order and payment.

"We're hoping this will make it easier to deal with some large grocery chains, as well as our own supply and distribution chain," Prevo said.

"It would also allow us to work with our suppliers for our forecasting and purchasing," he added. □

Features of insurers' Web sites

Marketing and promotions	100%
Economic gathering of potential prospects	95%
Online price quotes	47%
Online tools (calculators, e.g.)	16%

Base: Survey of more than 100 insurance agents about Web sites

Source: "The State of Internet Banking," JPMorgan Chase, 1998. Reprinted with permission, J.P. Morgan Chase Bank.

IS THE COMPANY THAT BROUGHT
THE INTERNET TO BUSINESS BEHIND YOUR ISP?



Meet the most powerful team in business network services: Cisco Systems and Cisco Powered Network service providers. Virtually every piece of information that travels across the Internet travels across Cisco equipment. Cisco Powered Network service providers use this very same equipment to bring innovative network services to your business. Get behind the program at www.cisco.com/cpn.

CISCO SYSTEMS

EMPOWERING THE
INTERNET GENERATION™

Internet Commerce

Extraverts • The World Wide Web • Intraverts

Briefs

STEALING FROM TV

- Average weekly household TV viewing: 55 hours, 16 minutes
- Average for homes with Internet and other online access: 46 hours, 59 minutes

Base: January 1998 survey of 5,000 households.

Source: Study for America Online, Inc., Dulles, Va., by Nielsen Media Research, New York.

Carnivore characters

Comedy Channel's Web site, www.comedycentral.com, has added Comedy Central's cartoon lions that take the shape of characters from the network's most popular programs. They include the heads of Dr. Katz, from the show of the same name; South Park's two-headed Kenny and Ice Cube, host of *Yo! MTV Raps*. The cartoon-profile technology is provided by Comnet Systems in New York.

Bumper 4.04

Highway Communications Corp. has released *Commuter 4.04*, which includes bug fixes that have come out, since the last version of the file shipped.

WWW WAITING

- Average home user's waiting time for a Web page to load: 15 seconds
- Average pages a user views per month: 1,145
- Average user's Web waiting time per month: 4.8 hours
- Total estimated home Web users in U.S.: 43.3 million
- Total time spent each month waiting for Web pages: 206 million hours

Base: Study of 2,500 Internet users

Source: WebPages, Inc., Waltham, Mass.

Food broker speeds replies

► Delivering E-mails 'To:All' slowed orders

By Roberta Fusaro

NOTHING KILLS RESTAURANT business faster than a long wait and a cold meal.

That's especially true for online food delivery services such as San Jose, Calif.-based Waiter.com and PizzaPlaza.com in Edmonton, Alberta. Their over-riding concern is customer service: Users who don't get a prompt response won't come back.

"For someone like Amazon.com, if they hold books for a

day and ship them later in the week, they're still fine. But we're handling real-time food-service requests — some within 20 minutes, the more urgent requests [in less time]," said Craig Cohen, president of Waiter.com.

Waiter.com, a 3-year-old online "food broker" whose World Wide Web site receives more than a million page views per month, takes thousands of food orders online per year and relays them to restaurants that pay to be included on the site.

The Waiter.com site collects dine-in and take-out orders via

Food broker, page 40

New ads: 'Rich concepts, not rich media'

► Industry seeks impact ads, fast downloads

By Sharon Machlis

AS THE INDUSTRY moves to hammer out new types of Internet ads, a basic tension is emerging: Advertisers want larger, more complex spots to grab viewers' attention. Web site publishers don't.

A study commissioned by 10 major advertisers' concluded that bigger ads were more effective than simpler banner ads, with consumers getting the main message one-third of the time they saw full-screen ads but only 16% of the time they saw banners.

Yet the bigger ads require bandwidth. And Jupiter Communications, Inc. in New York estimates that more than three out of four home surfers will access the World Wide Web through dial-up connections — a maximum of 56K bit/sec. — through 2002.

America Online, Inc. won't run large, technically complex ads that take too long to download or "look like junk" for people with slow connections, said Bob Pittman, president and chief operating officer of America Online. "We don't let our

"art monsters" ... make stuff people can't see," he said. About 20% of AOL subscribers are still running connections slower than 28.8K bit/sec.

"When bandwidth gets here, it's not going to be a problem anymore," said Mike Donahue, executive vice president at the

American Association of Advertising Agencies in New York. "But bandwidth isn't going to be here for a while."

At an Internet advertising summit last month hosted by Procter & Gamble Co., major manufacturers, site producers and advertising specialists created an organization aimed at

Rich concepts, page 40

JAVA TECHNOLOGY

Users prefer a late JDK 1.2 to a buggy one

By Carol Slinn

ALTHOUGH THEY might have liked to get their hands on it, several corporate users said they don't expect Sun Microsystems, Inc.'s new Java development technology — now delayed — to have a huge impact on their programming efforts.

Taking extra time to get a "very solid, reliable code base," Sun now expects its long-promised Java Development Kit (JDK) 1.2 — the software and tools that programmers use to compile, debug and run applications written in Java — to be available in November or December, said George Paolini, director of marketing for Sun's Java software division.

The HotSpot technology designed to speed Java performance is now due in the

JDK 1.2, page 40

Snapshot

Internet traffic spiked after news of the U.S. attacks on Sudan and Afghanistan on Aug. 20

THURSDAY AUG. 20		
Web site	Peak response time	Error rate*
CNN	15.3 seconds	1.1%
USA Today	14.1 seconds	1.6%
ABC News	40 seconds**	1.8%
THURSDAY AUG. 20		
Web site	Peak response time	Error rate*
CNN	48 seconds	11.4%
USA Today	27.6 seconds	14.6%
ABC News	23.3 seconds	30%

* Percentage of people not able to get pages or portions of pages
** ABC reported to have some reported Internet problems that week

Source: Research Systems, Inc. (www.researchsystems.com), San Mateo, Calif.

Food broker speeds replies

CONTINUED FROM PAGE 29

telephone and e-mail that customer service representatives then relay to more than 1,300 restaurant sites nationwide. Customers can either pick up their meals or have them delivered from restaurants such as Boston Market, The Olive Garden and California Pizza Kitchen. They pay when they get their food.

Cohen said most Water.com orders are generated through E-mail. Originally, all those requests went into every customer service representative's in-box. That prompted a service

free-for-all. Each representative jumped on assignments without knowing what a colleague may have already handled.

Water.com needed a way to load-balance those messages and second order histories. "If someone says their meal from Boston Market was the best they ever had, we need to be able to collect that information" to report back to member restaurants and for marketing purposes, Cohen said.

So the company began using the E-mail Management System from San Jose start-up EGain.

Inc. to help with routing and data collection. The EGain offering was more comprehensive and relatively cheaper than other products: \$1,000 a month for hosted service or \$50,000 for a single server in-house.

PAYBACK TIME

The company has already achieved some payback on the product — which it has used for a few months — from reduced redundancies and a consistent level of customer service. Cohen said. "Sometimes when two people contact a customer

about a request, that can be just as frustrating as no response," he said.

Cohen said Water.com customers now enter their food orders into a standard EGain-created Web form, which travels to the company via Netscape Mail. It lands in a central mailbox. Based on the request, the order is distributed to the appropriate customer service representative, who needs only a browser to access the data.

Rob DeSisto, an analyst at Garner Group, Inc. in Boston, said EGain is one in a growing market of E-mail response management products. Other players in this space include Kana Communications, Inc. and Mustang Software, Inc.

"A lot of companies have opened up their Web sites to users so they can send requests via E-mail. But those companies often don't anticipate the volume of responses they will receive," DeSisto said. This customer service and support technology is hot in financial services and retail, he said.

By contrast, PizzaPlaza.com, an online pizza order and delivery service run by OA Soft, Inc. in Edmonton, uses fax technology primarily. Because it's a fairly small start-up delivery service with only a few member restaurants in E-commerce-conservative Canada, Web-based routing would be overkill, said Ferdinand Issac, marketing manager at PizzaPlaza. □

Rich concepts not rich media

CONTINUED FROM PAGE 29

boosting the Web as an advertising medium. One of Fast Forward's four main tasks is devising new advertising models that everyone in the industry will accept along with banners and buttons.

The committee has pledged to come up with proposed online ad models by November.

It is too early to predict what the models might look like. In general, "we're going for rich concepts, not rich media," said Donahue, a member of Fast Forward's steering committee. That means looking for innovative ideas but not necessarily cutting-edge technology that many consumers might not be able to access. "Some of the best ideas can be done in 12K," Donahue said.

But in terms of what the new ad types will accomplish, several speakers at the Procter & Gamble summit cautioned against expecting Web ads to translate into immediate click-through sales.

"You start your brand building in the window-shopping

Worldwide spending forecast for online advertising



Source: Forrester Research, Inc., Cambridge, Mass.

phase," Pittman said.

Still, measuring an ad's effectiveness was very much on the minds of summit attendees. When asked to rank a half-dozen issues surrounding online advertising models, they put return on investment first.

NEW IDEA NEEDED

A growing number of experts say banner ads are less effective among consumers and will become less desirable among buyers, lending some urgency to the search for new ad models acceptable to Web publishers and advertisers.

At the Software Development '98 conference in Washington earlier this month, for example, author and former Sun Microsystems, Inc. engineer Jakob Nielsen said, "users are completely ignoring banner ads. Click rates are falling through the floor."

According to Evan Neufeld at Jupiter Communications, statistics on banner ads can be read as either good or bad news. Although 20% of consumers have no interest at all in clicking on banners, another 28% click at least once in every 10 Web sessions (and 51% click rarely).

"We would say the banner is not a home run but no strikeout either," he said. □

JDK 1.2 to be late

CONTINUED FROM PAGE 29

spring, Palmini said. Sun originally had targeted JDK 1.2 and HotSpot for late 1997 release, but these schedules have been revised several times. The latest delays reflect a slip of eight to 10 weeks, a Sun spokesman said.

"Of course, we always would like to see [JDK 1.2] here immediately, but frankly, it's far more important that it be as bug-free as possible and especially that HotSpot be as bug-free as possible," said John Melka, a senior systems engineer at Nations Bank Corp. in Chicago.

SWING SET

Melka is anxiously awaiting Sun's "Swing" technology, which helps programmers build graphical user interfaces for their applications. Swing technology is more tightly coupled in JDK 1.2, he said.

Ernst & Young LLP's Advanced Technology Center in New York is immersed in Java projects for several corporate clients, including Standard &

Poor's. But the company doesn't expect to encounter problems as a result of the JDK 1.2 and HotSpot delays.

"We're kind of afraid of [JDK 1.2]," said Catherine A. T. Sutch, a senior manager at Ernst & Young. "I look at 1.2, and it's so huge. If we ever use 10% of the features, it will be amazing."

Sabre Technology Solutions will use Java to replace a C++ application that airline reservations professionals and travel agents use to book flights. It is critical that the new version be "as fast or faster" than the current C++ version, said Noreen Henry, a Sabre senior development director.

Although HotSpot certainly will help, Sabre already has been building the application under the premise that it won't get the technology in time. "Our schedule wasn't dependent upon it, but it will obviously assist us when it becomes available," Henry said.

First Data Merchant Services.

Features in Java Development Kit 1.2 include:

- Java 2D
- Drag and drop
- Java interface definition language (IDL), which provides interoperability with the Common Object Request Broker Architecture
- Java virtual machine debugger interface
- Java servlet standard extension

a division of First Data Corp. in Omaha, is rolling out a Java application that will let banks check on merchants' credit-card information through Web browsers. New versions of the JDK or HotSpot aren't really a concern.

"The application is running fine at this point in time," said John Sudac, vice president for funding and settlement services in Hagerstown, Md. "I'm at the point where I'm leveling off on the functionality and concentrating on business expansion, so I don't want to be going to huge new version changes."

Among vendors, IBM, Oracle Corp. and Netscape Communications Corp. have said they don't expect the delays to hurt them. Microsoft Corp. declined comment.

"We're as eager to see [JDK] 1.2 as anybody else, but the 1.2 code base has been very well tested in the field, and what our customers are demanding is a Java environment they can count on. That's our top priority right now," said Jason Woodward, IBM's program manager for Java technical marketing. □

National advertisers with online ads



Source: Survey of 128 members of the Association of National Advertisers, Inc., New York. Excludes media of the advertiser's top 100 advertisers.

NEW PRODUCT

LUCKMAN INTERACTIVE, INC. has announced WebSweep, a cleanup utility that removes junk files picked up during previous Internet browsing sessions.

According to the Los Angeles company, users can schedule the frequency of hard-drive purges. Files can be deleted either transparently or selectively. It can

clean up ActiveX, Java classes, Hypertext Markup Language, video, audio, browser history lists, browser cache, plug-in channel data, plug-ins, recent document lists and other temporary and compressed files.

WebSweep costs \$19.95.

Luckman Interactive
(913) 614-0966
www.luckman.com

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Briefs

New server at liberty

The Michigan State Library will use Rochester, N.Y., high-speed Cyperus Corp.'s integrated document and knowledge server to manage documents and printing functions. The Lansing-based agency had been using Cyperus' Special point management system but needed to switch because it is moving from a mainframe to a client-server environment.

Alphalink E-mail

Micro Computer Systems, Inc. in Irving, Texas, has announced the Alphalink e-mail system, which was designed to work with alpha phones.

Shipping soon, the software client is \$99.95. The gateway costs \$995 for a five-user version. Evaluation copies can be downloaded from www.mcsystems.com.

Media manager

Micro Computer Systems Corp. announced Periflex 4.0, an integrated software for digital media, and Periflex Server. The software works with both Macintosh and Windows platforms and lets users organize, share and preview their streaming media files, including images and Hypertext Markup Language documents.

The software will be available next month and will cost \$999.95. Periflex Server, with five seats, will cost \$1,999.95.

Calendar upgrade

On Technology Corp. in Cambridge, Mass., announced Meeting Maker 5.5, an upgrade to its calendaring and scheduling software. Enhancements include remote capabilities that let users maintain and update schedules in real time via the Internet; an Internet Publisher that lets users publish calendars via the Internet or on Intranet; and support for the Lightweight Directory Access Protocol.

The product will ship Sep. 14. Pricing will start at \$99 per client.

NT aimed at laptops

► Microsoft touts it as heir to Win 95

By Sharon Gaudin

MICROSOFT CORP. is working to push its upcoming Windows NT 5.0 operating system onto corporate laptops.

Many users hope NT will have what it takes to be the upgrade of choice from Windows 95. And given Windows 98's less-than-stellar sales in the corporate market, that market may be ripe for the taking.

"We're looking to convert desktops and laptops to NT," said Teresa Light, vice president

of software development and implementation at Bradley Co. in Cleveland. "I'm not interested in Windows 98. I want

better performance, but I'm not going to deal with beta versions. I'm going to wait until NT 5.0 comes out and

then see how it runs."

NT 5.0 for Workstations is being tailor-made for laptop computers by adding or changing several features, according to Yusuf Mehdi, Microsoft's director of Windows marketing (see chart).

"Most companies today have not moved to Windows 98, from what we can see," he said.

Mehdi said NT 5.0 is being designed to more easily store documents, mail and files in cache so that users can do more work off-line. And it automatically updates databases when users plug back in to the system.

And security updates in NT 5.0 may also be attractive to laptop users, who could encrypt information so that if a laptop

NT 5.0, page 42

NT LAPTOP PLAN

Microsoft is working to make Windows NT corporate users' choice for their laptops. To tailor NT 5.0 for laptops, the company has:

- Added the ability to store more documents and files in cache
- Simplified the interface
- Improved and simplified search capabilities
- Clarified error messages
- Created HTML links from error messages to help pages

JetSend streamlines net printer setup

By Lisa A. Pfifer

I JUST FINISHED installing a network printer and scanner on my LAN. The 24 page/min. Hewlett-Packard Co. HP LaserJet 8000DN was online in minutes.

PRODUCT REVIEW

► JetSend communications technology

HEWLETT-PACKARD

Co.

Palo Alto, Calif.
www.jet send.hp.com

Price: Developer's kit for \$15,000

Pros: Simple for end users and IT managers; good fit for printing from small, inexpensive network devices

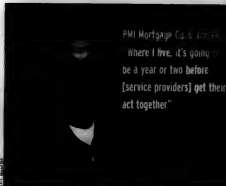
Cons: Improved security will be needed for enterprise use; ultimate success depends on multivendor deployment

Installing an HP Network Scanjet 5 could have been much more difficult, however. After all, when you connect the scanner to the LAN, you encounter a maze of output options and have to identify each by their name or IP address: E-mail, fax and optical character recognition. You also have to add 40M bytes to 40M bytes of software on a shared server or stand-alone client.

But using HP's new JetSend protocol with the HP hardware, all I had to do was enter the IP address of a JetSend destination to print scanned images directly from device to device, without installing a bit of desktop software. JetSend is, in essence, a handshake protocol, allowing the scanner to say, "Hello, I'm a scanner," and the printer to respond, "Hello, I'm a printer, and here are my capabilities."

Today's information technology manager is faced with a multitude of devices that capture or present visual surfaces. They range from printers, copiers, faxes and scanners to electronic whiteboards, digital projectors, personal digital assistants, smart phones, indus-

JetSend, page 42



Telecommuters seek high-speed services

By Bob Wallace

IN TELECOMMUTING, as in real estate, the three most important things are location, location and location.

The success or failure of a telecommuting program depends largely on whether local carriers and cable television companies offer high-bandwidth connections in areas where your workers live. Local carriers and cable TV companies are primarily delivering high-capacity offerings such as

PMI Mortgage Co. is a firm where I live, it's going to be a year or two before [service providers] get their act together."

digital subscriber line (DSL) and cable modems services in big cities first to recoup their investments in the emerging technologies.

That creates problems for information technology shops trying to support telecommuters, who are typically located in suburban or rural areas. As a result, they have to live with lower-bandwidth services such as modem links — and Integrated Services Digital Network (ISDN), where it is available.

Telecommuters, page 42

Telecommuters

CONTINUED FROM PAGE 41

"It's killing us not to have DSL and cable modem service," said Will Weider, chief information officer at Trinity Regional Health Systems in Rock Island, Ill.

POTENTIAL TIME SAVINGS

Telecommuters dial in to Trinity from rural locations at 28.8K bit/sec. to transcribe doctors' dictations stored in a computer system. The transcriptions are sent back to headquarters, where they are added to patients' records, Weider said.

"Higher-speed services would mean they'd need to stay on the line for less time. And that would keep our records fresher," he said. Trinity couldn't get its cable provider even to run cable TV to its new hospital, let alone cable modem service, he added.

The situation isn't expected to improve in the near future.

"We do not expect to see very much in the way of broad-based suburban/rural telecommuting support until

after 2000," said Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consultancy that covers DSL and cable modem service deployment. "For some, things may run even as late as 2003, [leaving] 56K modems and ISDN as the only games in town."

PMI Mortgage Co. in San Francisco has had no problem finding high-speed services locally, but finding them outside the metropolitan area is another story.

SUBURBAN DISCONNECT

"We can get DSL and cable modem service here, but 80 miles away where I live, it's going to be a year or two before [the service providers] get their act

together and offer these options," said Jim Fey, PMI's strategic technology director.

"That creates problems for programmers who write programs from their homes that do things like go through a database to sum up the day's sales. The program is running on the PC and all the data is traveling from the mainframe back across the [communication

lines link]," Fey said.

Worse still, users trying to simplify wide-area network services for telecommuting are finding it difficult to come up with one option that all telecommuters can use. Even services such as ISDN, which has been around since the late 1980s, are a long way from being ubiquitous.

"The biggest problem with re-

mote access is that [the service providers] need to get their act together," said Jim Barry, chief information officer at Insurance Holdings of America LLC in Beverly, Mass. "It's almost impossible to find one uniform option. Their highways are set, but the on-ramps aren't consistent."

No matter how much users want high-speed telecommuting services, they won't just jump at the first service they see, said James Ray, vice president of corporate systems and strategy development at office supplies company Staples, Inc. in Framingham, Mass.

"The services have to be readily available, highly reliable and low-cost" before Staples would use them, Ray said. Describing the status of telecommuting services in his area, he added, "I'd buy a cable modem for my home, but my local cable provider doesn't offer cable modem service." □

NT 5.0: On laptops?

CONTINUED FROM PAGE 41

is stolen, the thief won't be able to access information on the hard drive, he said.

The interface also is being simplified, the menu is being designed to be customized dynamically and error messages are being clarified and will offer dynamic links to help pages.

SPEED A QUESTION

Randall Kennedy, an analyst at Competitive Systems Analysis, Inc. in Danville, Calif., said he has reservations about NT 5.0's performance.

"Performance is going to be a wait-and-see," Kennedy said. "NT 5.0 is coming in around 35 million lines of code. That's a lot of code hitting the metal at any one time. That could be a lot, maybe too much, for a laptop."

Mehdi said he isn't sure if NT 5.0 will run faster than NT 4.0, but expects it to run just as fast. NT 4.0 has had poor market share on laptops because of its huge resource usage and lack of drivers for many laptop components.

Light said NT currently isn't the laptop answer she needs. "We're really going the next version will improve the performance of NT. I want equal or equivalent performance to Windows 95 when it comes to response time. NT 4.0 is a hog in terms of memory," she said. □

JetSend

CONTINUED FROM PAGE 41

trial machinery and World Wide Web servers. Too often, each device offers a different interface, requires unique drivers and imposes barriers that impede communication and reduce productivity. Protocols such as JetSend promise simplicity and ease of use by eliminating the middle man — the client/server that sits between the source and destination device.

HP products now available with JetSend include LaserJet 4000/5000/8000 printers, the ScanJet 5 and JetSend for Windows NT. The JetSend protocol specification is available free, and a JetSend Development Kit is available to any vendor for a modest, one-time fee. A pair of JetSend-enabled products already have been released by one third-party vendor, fax software maker Tobit Software. Other vendors, such as printer and fax equipment makers, have demonstrated or voiced support.

However, to realize its goal, JetSend must become the ubiquitous device-to-device interface. That is a tall order but I am encouraged by several factors. JetSend is a lightweight protocol, using only a few bytes for each conversation, which

runs over any reliable, bidirectional transport, enabling deployment over Ethernet, Token Ring, infrared devices and wireless. Java Development Kit code is relatively inexpensive, compact and has been ported to real-time operating systems, essential for embedding in small, inexpensive devices.

At PC Expo '98 in June, JetSend demonstrators included Encanto Networks, Inc., which uses JetSend to enable printing from its Ego Commerce Webstation, Castelle, JetFax, Inc. and Tobit are actively deploying JetSend-enabled Internet fax.

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Some stronger authentication methods — at least a hashed user name or password — would be needed before I'd put my JetSend printer on the public Internet for applications such as sending print jobs to teleworkers. Also, devices such as the ScanJet must be manually configured with JetSend des-

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To be successful, JetSend must be driven by market demand. Enterprise administrators must come to expect that every network device will arrive

with JetSend, just as they now expect IP/PPP. After configuring a JetSend-enabled printer and network scanner, I am convinced that it is easy to use and that it saved me hours in systems administration time. □

Phifer is a principal at Core Competence, Inc., an Internet consulting company in Dresher, Pa. Her E-mail address is phifer@corecomp.com.

NEW PRODUCTS

SOCKET COMMUNICATIONS, INC. has announced the LP-E Card, an Ethernet card for palm-size PCs.

According to the Newark, Calif., company, the card was designed for tasks such as synchronization, backup, file transfer, E-mail, program installation and Web channel updates. Users can plug the device in to a palm PC's CompactFlash slot. It offers a transfer rate of 10M bps.

The LP-E costs \$149. Socket Communications (908) 744-4700 www.socketcom.com

EQUINOX SYSTEMS, INC. has

announced the Digital Modern Pool, external hardware that provides 56K bit/sec. connections to NT servers over T1 lines.

According to the Sunrise, Fla., company, the pool enables any NT server to support many dial-in users through standard communications software such as NT Remote Access Server. Four T1 lines may be supported from a single server slot and up to 16 T1 lines (16K modems) per server.

Pricing ranges from \$2,790 to \$6,975. Equinox Systems (954) 746-9000 www.equinox.com

Telecommuters

CONTINUED FROM PAGE 41

"It's killing us not to have DSL and cable modem service," said Will Weider, chief information officer at Trinity Regional Health Systems in Rock Island, Ill.

POTENTIAL TIME SAVINGS

Telecommuters dial in to firms from rural locations at 28.8K bit/s to transcribe doctors' dictations stored in a computer system. The transmissions are sent back to headquarters where they are added to patients' records. Weider says,

"Higher-speed services would mean they'd need to stay on the line for less time. And that would keep our records fresher," he said. Trinity couldn't get its cable modem even to run cable TV to its new hospital, let alone cable modem service, he added.

The situation isn't expected to improve in the near future.

"We do not expect to see very much in the way of broad-based suburban/rural telecommuting support until

after 2000," said Tom Noll, president of CMI Corp. a Voorhees, N.J., consultancy.

DSL and cable modem service deployment "for some things may run even as late as 2003, [leaving] 36K modems and ISDN as the only games in town."

PMI Mort-

gage Co. in San Francisco has had no problem finding high-speed services locally, but finding them outside the metropolitan area is another story.

SUBURBAN DISCONNECT

"We can get DSL and cable modem service here, but 80 miles away, where I live, it's going to be a year or two before [the service providers] get their act



Staples' James Ray: Services must be "readily available, highly reliable and low-cost"

together and offer these options," said Jim Fey, PMI's strategic technology director.

"That creates problems for programmers who write programs for their homes that do things like go through a database to sum up the day's sales. The program is running on the PC, and all the data is traveling from the mainframe back across the [communi-

cations link]," Fey said.

Worse still, users trying to simplify wide-area network services for telecommuting are finding it difficult to come up with one option that all telecommuters can use. Even services such as ISDN, which has been around since the late 1980s, are a long way from being ubiquitous.

"The biggest problem with re-

moite access is that [the service providers] need to get their act together," said Jim Barry, chief information officer at Insurance Holdings of America LLC in Beverly, Mass. "It's almost impossible to find one uniform option. Their highways are set, but the on-ramps aren't consistent."

No matter how much users want high-speed telecommuting services, they won't just jump at the first service they see, said James Ray, vice president of corporate systems and strategy development at office supplies company Staples, Inc. in Framingham, Mass.

"The services have to be readily available, highly reliable and low-cost" before Staples would use them, Ray said. Describing the status of telecommuting services in his area, he added, "I'd buy a cable modem for my home, but my local cable provider doesn't offer cable modem service." □

NT 5.0: On laptops?

CONTINUED FROM PAGE 41

is stolen, the thief won't be able to access information on the hard drive, he said.

The interface also is being simplified; the menu is being designed to be customized dynamically and error messages are being clarified and will offer dynamic links to help pages.

SPEED A QUESTION

Randall Kennedy, an analyst at Competitive Systems Analysis, Inc. in Danville, Calif., said he has reservations about NT 5.0's performance.

"Performance is going to be a wait-and-see," Kennedy said.

"NT 5.0 is coming in around 35 million lines of code. That's a lot of code hitting the metal at any one time. That could be a lot, maybe too much, for a laptop."

Mehdi said he isn't sure if NT 5.0 will run faster than NT 4.0, but expects it to run just as fast. NT 4.0 has had poor market share on laptops because of its huge resource usage and lack of drivers for many laptop components.

Light said NT currently isn't the laptop answer she needs. "We're really hoping the next version will improve the performance of NT. I want equal or equivalent performance to Windows 95 when it comes to response time. NT 4.0 is a hog in terms of memory," she said. □

JetSend

CONTINUED FROM PAGE 41

trial machines and World Wide Web servers. You often reach devices over a different interface, requires unique drivers and imposes barriers that impede communication and reduce productivity. Protocols such as JetSend promise simplicity and ease of use by eliminating the middle man — the client/server that sits between the source and destination device.

JIP products now available with JetSend include JassJet 4000/5000/6000 printers, the ScanJet 1 and JetSend for Windows NT. The JetSend protocol specification is available free, and a JetSend Development Kit is available to any vendor for a modest, one-time fee. A pair of JetSend-enabled products already have been released by one third-party vendor, fax software maker Toit Software. Other vendors, such as printer and fax equipment makers, have demonstrated or voiced support. However, to realize its goal, JetSend must become the ubiquitous tool-to-device interface. That is a tall order. But I am encouraged by several factors. JetSend is a lightweight protocol, using only a few bytes for each conversation, which

runs over any reliable, bidirectional transport, enabling deployment over Ethernet, Token Ring, infrared devices and wireless. Java Development Kit code is relatively inexpensive, compact and has been ported to real-time operating systems, essential for embedding in small, inexpensive devices.

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Equinox Systems

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Software

Databases • Development • Operating Systems

Briefs

Who foots the bill?

92% of software developers said their employers pay for all their programming training courses.

Base: 163 respondents taking programming classes at Corporate U Pittsburgh

Source: Corporate U is a training company at Pittsburgh

Support for JavaBeans

Several products that support the Enterprise JavaBeans specification have been released: Parasoft's Software, Inc.'s PowerBar for Enterprise JavaBeans application server and BlueStone Software, Inc.'s Sapphire/Web application server framework. Information Builders, Inc. released three Enterprise JavaBeans with its EDA Enterprise Component Broker application server.

Enabling directories

Netscape Communications Corp. has announced the release of its PerlLDAP software modules, which combine the Perl scripting language with the Lightweight Directory Access Protocol to help developers enable their current applications for directories. The code is expected to be freely available for download this month at www.mozilla.org.

Platform preferences for enterprise resource planning applications

Unix	72%
Windows NT	51%
IBM MVS	31%
IBM AS/400	12%
OpenVMS	8%
Unisys	4%
Sequent	3%
NCR	2%

Base: 886 IS managers oversee budget \$96 million, average number of workstations 3,352; multiple responses allowed

Source: Measuring the Efficiency of Resources in Enterprise Technology Project data were downloaded from SurveyMonkey.com

MTV fine-tunes nuts and bolts

► Analytic tool aids in budgets and forecasting

By Stewart Davis

JEFF POLNER recognized a mess when he saw one.

Not too long ago, Polner, the director of financial analysis at MTV Networks, started looking at the cable television music network's transportation satellite leases. He blanched when he saw what he described as "disjointed chaos."

There was no organization to the leases for the satellites MTV needs to broadcast its shows, Polner said. Some were classified under capital expenses, some as operating expenses—and no one seemed to know exactly which ones were about to expire.

Earlier, when Polner was

brought about the MTV division of Viacom Inc. to consolidate budgeting and financial projections, he saw lots of spreadsheets but very little forward-looking analysis. "When we would do capital analysis, we'd look up how much our budget was and compare it to how much we'd spent so far that year. If we had some left over, it was good," Polner recalled.

So Polner brought in an online analytical processing (OLAP) tool called TMI from Applin, Inc. in Westboro, Mass., to bring order to the chaos.

Now finance managers at the company's affiliate sales department use the OLAP tool to look

MTV, page 46

MTV's Jeff Polner praises TMI for bringing order to "disjointed chaos"

Change the process, not software

► Users see benefits in pristine business apps

By Craig Stedman

VIRGINIA POWER CO. gave a big thumbs-down to the idea of making any software modifications during its rollout of SAP AG's R/3 applications.

"We didn't change one line of code, and I'm very proud of that. We changed our business to fit the software," said Lyn McDermid, acting chief information officer at the Richmond-based utility, which went live with R/3 early last month for finance and other back-office functions.

But that meant a lot of changes for Virginia Power. For example, the company had to make 50 compensation plans work within SAP's payroll module, she said. And the project team designed 50 new business processes for the utility.

Other experienced project managers tell similar stories. The appeal of minimizing or avoiding software modifications

is twofold, they said. Business applications can potentially be installed faster, and upgrading them should be less complicated without custom code to get in the way.

But no customization policies are often easier said than done, the managers added. Business

Cascade Designs, Inc. wants to stay away from customizing J. D. Edwards & Co.'s applications so it can make a six-month rollout schedule for the software. The Seattle-based maker of camping equipment expects the software to help it in setting more cost-effective and flexible production plans.

"We're trying desperately for

"We didn't change one line of code... We changed our business to fit the software."

—Lyn McDermid, Virginia Power



users have to be sold on the idea of changing the way they do things to fit how the software works—and in some cases the changes may not be entirely to their liking.

a basic, plain-vanilla installation," said Doug Jacot, director of operations at Cascade. He added, however, that eventually the company will probably

Change, page 46

Packaged middleware matures

By David Crenstein

USERS ARE finding that message-oriented middleware lives up to its acronym. MOM, in many ways: It's reliable and responsive, but it isn't sexy—not easy to live with once life becomes too complex.

The next step for the technology, which International Data Corp. analyst Ed Achy said is the fastest-growing segment of the middleware market, is to become more usable, less proprietary and therefore a bit more appealing.

MOM allows applications to share data quickly. Distributed applications send and receive messages through a separate middleware layer, making MOM reliable and platform-independent. Because MOM is asynchronous—meaning it

Middleware, page 46





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PLATINUM
TECHNOLOGY

Change the process

CONTINUED FROM PAGE A3

have to tweak the software to add extra order forecasting features and to streamline data entry.

For example, the custom software now used by Cascade automates more of the process of inputting time sheets and other labor information than J. D. Edwards' OneWorld package does, Jacot said.

Thirty-two of 41 packaged application users surveyed this year by Forrester Research, Inc. in Cambridge, Mass., said they try to avoid software changes or limit them to a bare minimum (see chart). "But the reality is that once you get into an imple-

mentation, the ugly head of modifications is going to come up," said Jim Holincheck, an analyst at Giga Information Group in Cambridge, Mass. Software selection teams "may not understand what is truly needed [by business units], or the business may just change," he said.

Holincheck recommended that project teams walk through software demonstrations with users up front and scope out all plans for changing both the applications and internal business practices.

Corning, Inc. initially took a no-modifications stance on an

TINKER AND TAILOR

What is your policy on customizing packaged applications?



Base: 41 Fortune 1,000 companies surveyed this year

Source: Forrester Research, Inc., Cambridge, Mass.

ongoing rollout of PeopleSoft, Inc.'s applications, but the Corning, N.Y.-based manufacturer eventually compromised to avoid putting users through too many changes.

Project managers "dream of this perfect world where you

- Allow only limited modifications
- Change business practices to fit software
- Customize software to fit business
- No formal policy

never touch the software," said Rick Beers, a strategic process leader at Corning.

But, he added, they should plan up front for modifications so they don't get blindsided when the need to customize applications pops up. □

Packaged middleware matures

CONTINUED FROM PAGE A3

doesn't need to wait for a particular process or transaction to finish before it can move on — it is also fast.

D. E. Shaw & Co., a New York brokerage firm known for its advanced use of a number-crunching technique to find trading opportunities, relies on MOM to be very fast: up to 5,000 messages per second, said Gauvain Suri, a D. E. Shaw vice president. The firm's technique, statistical arbitrage, mines profit opportunities out of differences in world stock prices, currency rates, interest rates and other financial data.

After years of working with a homegrown MOM, D. E. Shaw is set to implement Smart Sockets 5.0 from Talarian Corp. in Los Altos, Calif., Suri said. The system will operate in an environment of Unix and Windows NT servers.

OUTGROWING HOME-GROWN

Such commercial MOM packages have matured to become the most viable option, Acly said. "It's gone beyond the point where it is making any sense for anybody to be making their own," he said.

Suri said D. E. Shaw needed a system it could grow into. The 10-year-old firm has 900 employees worldwide and \$1.7 billion in aggregate capital. "Our company is growing extremely rapidly, and everything needs to be scaled up," Suri said.

Roy Schutte, an analyst at Garner Analytics, wrote in a recent report that MOM can act fast enough to be the basis of

MIDDLEWARE UNMUDDLED

Message-oriented middleware (MOM): Lets applications on different computing platforms and networks exchange data reliably and securely. Messages are sent and received through an independent layer.

Common Object Request Broker Architecture (CORBA): Lets applications execute otherwise incompatible programs no matter where they reside on the network. A program in one location can use the services of another.

Remote Procedure Call (RPC): Also allows services to be shared. Calling program sends a message and data to another program residing elsewhere; the results are then returned.

Database middleware: Translates SQL requests from applications into the native tongue of the target database.

Source: *For Computer Security, Anti-Fraud, Compliance & More*

a "zero-latency" operation in which applications can share data in near real time.

MOM might be more widely used if it were a little more appealing to developers, said Sukao Makumuri, vice president of interactive banking technology at BankAmerica Corp. and chairman of the users committee of the Message Oriented Middleware Association. Instead of MOM, with both an

unnecessary role of enabling the sharing of data and a proprietary application programming interface, developers are bettering their careers on more high-profile object technology tools such as Java, Makumuri said. And MOM's unfairly earned reputation of being difficult to use poses a problem for companies that need to find programmers to implement it, he said.

Acly said MOM, which requires coding to establish message connections among applications, is becoming easier to implement with an emerging top layer — dubbed "businessware" — that can reduce its complexity. Several vendors target this market, including Virta Technology, Inc., Active Software, Inc. and Tibco, Inc. IBM is expected to add a layer on top of MQSeries, Acly added.

The benefits of application integration are clear, Makumuri said. Before BankAmerica adopted IBM's MQSeries MOM in its brokerage operations to automate the data flow, printouts from the trading desk were faxed to the confirmation desk, which operated on a different system. There, a person would re-enter the data.

Still, it isn't for everything. The bank doesn't use MQSeries in environments where objects are spread across several platforms; instead, it uses Common Object Request Broker Architecture (CORBA)-based services, Makumuri said.

Similarly, Suri said his one misgiving about Smart Sockets is that it doesn't support CORBA. Talarian said future versions will. □

Analytic tool helps MTV budget

CONTINUED FROM PAGE A3

into how much subscriber affiliates are paying, and make future projections about that revenue. MTV's sister network, Nick, also uses TM1 to figure out how best to amortize the cost of programming over its broadcast life span.

"We're able now to capture spending data project-by-project and analyze it down to the category level," Palmer said. He said he chose TM1 because it "was fairly intuitive to use," it integrated with the Microsoft Excel spreadsheet programs the company was using, and its read/write capabilities allowed more advanced analysis. Pricing for TM1 starts at \$35,000.

Don MacDovich, an analyst at Meta Group, Inc. in Stamford, Conn., said Apple's strength as an analysis tool comes from its ability to read and write to the data sets. "This lets you do calculations in context and not only lets you look at the data but start asking what-if questions about it," MacDovich said. "For inventory managers, it can show them what's in the wrong place and how it can be changed."

TRIMMED COPIES

Palmer recently did exactly that to analyze MTV's photocopy usage. The lease on the company's 100-plus copiers was being renegotiated, and Palmer looked into which models the company had and how they were used. "I was able to recommend that we downgrade 10 and completely eliminate 15," Palmer said. If he hadn't used an OLAP tool for analysis, "we probably never would have been able to get at this [data] the way we did," he added.

Dairyworld Foods, Canada's second-largest dairy cooperative, based in Vancouver, British Columbia, uses TM1 for financial analysis and for calculating price and cost increases for each of its 47 branches throughout western Canada.

What used to take days of spreadsheet crunching is now much more streamlined, said Ted Brownson, Dairyworld's manager of management accounting. Now the calculations are done automatically, "and we've eliminated three days of work," he said. □

NEW PRODUCTS

CODE FIVE, INC. has announced **Code 5/X Design Studio Release 6**, a graphical user interface development tool for Java and Windows 95, 98, and NT. The Studio supports a wide range of development tasks without writing code.

Code 5/X Design Studio Release 6 costs \$599. **Code 5/X (64-bit version)** costs \$1,499.

CODE FIVE, INC. has announced

software with a remote model. The Dallas company said the software adds detailed time data collection to major project management or payroll systems. Pricing begins at \$1,995.

CODE FIVE, INC. has announced

Servers & PCs

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Briefs

In the printer front

Cannon U.S.A., Inc. — with dual Xerox Corp. family in its sights — has said it will offer three new printer systems: high-volume black-and-white copying and printing, high-volume multi-function systems and high-speed color printers.

Cannon also said it will add to its current line of high-speed color printers. Cannon claimed that within two years it will gain up to 20% of the midrange and high-end color market dominated by Xerox.

Meanwhile, Xerox said it will expand its ink-jet printer business to compete directly with Hewlett-Packard Co., which leads the desktop computer printer market.

Which storage

Officials at Hitachi Data Systems Corp. said the Hitachi Freedom 5500 storage subsystem is now certified for use with Trend Micro's desktop software from Hitachi's Trend Systems, Inc.

New server network

Multi-Tech Systems, Inc., in Milpitas, Calif., has announced the MTP200-100, an Internet proxy server with two Ethernet ports. The system provides shared Internet access to LAN users, allowing for Multi-Tech. One port connects to the wide Internet. Ethernet LAN is a must to mid-size offices, and the other port plugs in to a high-speed cable modem, providing megabit data transfer rates.

The MTP200-100 costs \$799.

Average number of desktop computers installed at U.S. companies

Fewer than 500 employees 171
More than 500 employees 2,692

Source: Survey of 300 companies (64 with fewer than 500 employees; 136 with more than 500 employees)

Source: International Data Corp., Framingham, Mass.

Clustering goes mainstream

► Business apps require availability once found only at the high end

By Jaisankar Vijayan

THE RAPID GROWTH of applications such as Web serving, electronic commerce and enterprise resource planning (ERP) are beginning to push high-availability clustering technologies into the commercial mainstream.

SCO, Inc. and Compaq Computer Corp. recently entered into an agreement that lets SCO deliver UnixWare NonStop Clusters software to a wide variety of customers in markets such as financial services, retail and Internet commerce.

NonStop Clusters for UnixWare is a clustering technology

Samples of the high-availability clustering technologies available for Windows NT and Unix:

- **Microsoft Cluster Server for NT:** High-availability support only. Allows two-way fail-over.
- **Digital TruClusters for Unix and Digital Clusters for Windows NT:** Supports clustering for both high-availability and scalability.
- **Data General Cluster-Win-Box:** Fully prepackaged, high-availability cluster for Windows NT.

that comes from Compaq's Tandem division.

The technology lets users tie as many as six Intel Core-based servers in a high-availability configuration. So far, Compaq has targeted its clustering products mainly at telecommunications companies.

Under the new arrangement, SCO will work with its own

channel partners as well as Compaq resellers in delivering NonStop clusters to a wider cross-section of customers.

Until recently, clustering typically was used in very high-end Unix and proprietary server environments to improve application uptime. It basically lets users tie the two or more servers into a configuration where one server takes on the workload of another in case of a hardware or software failure. The same technology also lets users tie multiple servers together to increase overall processing capacity.

Both capabilities are going to be crucial for users looking to run applications that require nearly continuous availability, such as World Wide Web

serving and ERP.

"Clustering... will particularly affect where Windows NT will go," said James Garden, an analyst at Technology Business Research, Inc. in Hampton, N.H. Clustering could help concerns about Windows NT's reliability, he said.

Clustering's benefits aren't limited to NT. Millipore, Inc., a manufacturer of purification products in Bedford, Mass., plans to cluster two Unix servers, which run Oracle Corp. and Lotus Development Corp. applications, in a high-availability configuration later this year.

The move is part of the company's bid to ensure more than 99% availability of crucial applications such as E-mail and Notes, said Kevin Danahy, manager of corporate Internet computing at Millipore.

For the company's NT-based file and print servers, Millipore will use RAID technologies and equipment such as hot-swappable drives to ensure that the servers are up at least 96% of the time, Danahy said.

Security Forces, Inc., a Clustering, page 48

Rewritable CDs gain as storage option

► They cost less per megabyte than Zip disks

By Nancy Dillon

HIS 100M-BYTE Imagem Corp. Zip disks were too small, and his quarter-inch cartridge tapes, at 2G bytes and more, were too big. Stan Woodcock needed a capacity compromise. He found it in rewritable CDs.

"A CD's 650M-byte capacity is perfect for us," said the network administrator at River-side Technologies, Inc., a Fort Collins, Colo.-based environmental consulting firm.

Woodcock said he bought two Hewlett-Packard Co. rewritable CD, or CD-RW, drives because he likes to file a single CD for each client project.

His CD-RW discs, which contain mostly computer-aided design files and weather statistics, are filled with an average of

about 500M bytes each.

HP announced last week a rewritable CD drive called the HP CD-Writer Plus \$1001. Competitor Yamaha Systems Technology, Inc. will release its rewritable CD drive, the CRW4416, by the end of next month. Both drives offer im-

proved speeds and the ability to author both CD-RW and CD-Recordable (CD-R) discs. (CD-RW drives can erase and rewrite individual files but CD-R drives can't.)

CD-RW discs are costly compared with CD-R discs: about \$45 vs. \$2. But compared with Zip disks, which cost about \$15, CD-RW is cheaper: 7 cents per megabyte vs. 15 cents.

"CD-rewritable drives will enjoy a pretty good market through 2002," said Mary Bou-



Source: International Data Corp., Framingham, Mass.

Snapshot

PC GROWTH CONTINUES

U.S. PC unit shipments, 1996-2002

Year	Shipments (Millions)
1996	21.1M
1997	24.8M
1998	28.4M*
1999	32M*
2000	35.3M*
2001	38.7M*
2002	42.2M*

* Projected

Value of U.S. PC shipments, 1996-2002

Year	Value (\$ Billions)
1996	\$46.3B
1997	\$49.3B
1998	\$52.9B*
1999	\$53.1B*
2000	\$56.2B*
2001	\$61.2B*
2002	\$63.5B*

* Projected

Source: International Data Corp., Framingham, Mass.

Rewritable CDs, page 48

Change the process

CONTINUED FROM PAGE 43

have to break the software to add extra order forecasting features and to streamline data entry.

For example, the custom software now used by Cascade automates more of the process of inputting time sheets and other labor information than J.D. Edwards' OneWorld package does, he said.

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Project managers "where you see this perfect world" dream you

- ☐ Allow only limited modifications
- ☐ Change business practices to fit software
- ☐ Customize software to fit business
- ☐ No formal policy

never touch the software," said Rick Beers, a strategic process leader at Corning.

But, he added, they should plan up front for modifications so they don't get blindsided when the need to customize applications pops up. □

Packaged middleware matures

CONTINUED FROM PAGE 43

MIDDLEWARE UNMUDDLED

Message-oriented middleware (MOM): Lets applications on different computing platforms and networks exchange data reliably and securely. Messages are sent and received through an independent layer.

Common Object Request Broker Architecture (CORBA): Lets applications execute otherwise incompatible programs no matter where they reside on the network. A program in one location can use the services of another.

Remote Procedure Call (RPC): Also allows services to be shared. Calling program sends a message and date to another program residing elsewhere; the results are then returned.

Database middleware: Translates SQL requests from applications into the native tongue of the target database.

Source: The Computer Company, And MiddleWare, Computerworld research

ment's need to wait for a particular process of transaction to finish before it can move on—it is also slow.

D. E. Shaw & Co., a New York brokerage firm known for its advanced use of a number-crunching technique to find trading opportunities, relies on MOM to be very fast; up to 3,000 messages per second, said Gaurav Suri, a D. E. Shaw vice president. The firm's technique, statistical arbitrage, mines profit opportunities out of differences in world stock prices, currency rates, interest rates and other financial data.

After years of working with a homegrown MOM, D. E. Shaw is set to implement Smart Sockets 3.0 from Talaran Corp. in Los Altos, Calif., Suri said. The system will operate in an environment of Unix and Windows NT servers.

OUTGROWING HOMEOWN

Such commercial MOM packages have matured to become the most viable option, Aclis said. "It's gone beyond the point where it makes any sense for anybody to be making their own," he said.

Suri said D. E. Shaw needed a system it could grow into. The 10-year-old firm has 900 employees worldwide and \$1.7 billion in aggregate capital. "Our company is growing extremely rapidly, and everything needs to be scaled up," Suri said.

Roy Schulte, an analyst at Gartner Associates, wrote in a recent report that MOM can act fast enough to be the basis of

a "zero-latency" operation in which applications can share data in near real time.

MOM might be more widely used if it were a little more appealing to developers, said Sanku Maktum, vice president of interactive banking technology at BankAmerica Corp. and chairman of the users committee of the Message-Oriented Middleware Association. Instead of MOM, with both an

unsexy role of enabling the sharing of data and a proprietary application programming interface, developers are betting their careers on more high-profile object technology tools such as Java, Maktum said. And MOM's unfairly earned reputation of being difficult to use poses a problem for companies that need to find programmers to implement it, he said.

Aclis said MOM, which re-

quires coding to establish message connections among applications, is becoming easier to implement with an emerging top layer—dubbed "businessware"—that can reduce its complexity. Several vendors target this market, including Vitrux Technology, Inc., Active Software, Inc. and Tibco, Inc. IBM is expected to add a layer on top of MQSeries, Aclis added.

The benefits of application integration are clear. Maktum said. Before BankAmerica adopted IBM's MQSeries MOM in its brokerage operations to automate the data flow, print-outs from the trading desk were faxed to the confirmation desk, which operated on a different system. There, a person would re-enter the data.

Still, it isn't for everything. The bank doesn't use MQSeries in environments where objects are spread across several platforms; instead, it uses Common Object Request Broker Architecture (CORBA)-based services, Maktum said.

Similarly, Suri said his one misgiving about Smart Sockets is that it doesn't support CORBA. Talaran said future versions will □

Analytic tool helps MTV budget

CONTINUED FROM PAGE 43

into how much subscriber affiliates are paying and make future projections about that revenue. MTV's sister network, Nickelodeon, uses TMI to figure out how best to amortize the cost of programming over its broadcast life span.

"We're able now to capture spending data project-by-project and analyze it down to the category level," Polner said. He said he chose TMI because it was fairly intuitive to use, it integrated with the Microsoft Excel spreadsheet programs the company was using, and its read/write capabilities allowed more advanced analysis. Pricing for TMI starts at \$45,000.

Don MacAvish, an analyst at Meta Group, Inc. in Stamford, Conn., said Apple's strengths as an analysis tool comes from its ability to read and write to the data sets. "This lets you do calculations in context and not only lets you look at the data but start asking what-if questions about it," MacAvish said. "For inventory managers, it can show them what's in the wrong place and how it can be changed."

THIMBER COPIERS

Polner recently did exactly that to analyze MTV's photocopy usage. The lease on the company's 100-plus copiers was being renegotiated, and Polner looked into which models the company had and how they were used. "I was able to recommend that we downgrade 20 and completely eliminate 15," Polner said. If he hadn't used an OLAP tool for analysis, "we probably never would have been able to get at this [data] the way we did," he added.

Dairyworld Foods, Canada's second-largest dairy cooperative, based in Vancouver, British Columbia, uses TMI for financial analysis and for calculating price and cost increases for each of its 47 branches throughout western Canada.

"What used to take days of spreadsheet crunching is now much more streamlined," said Ted Brownson, Dairyworld's manager of management accounting. "Now the calculations are done automatically, and we've eliminated three days of work," he said. □

NEW PRODUCTS

CODE F/X, INC. has announced **Code F/X Design Studio Release 6**, a graphical user interface development tool for Java and Windows 3.x, 95, 98 and NT. The Toronto company said the tool works with rapid application development environments. Users can design and modify pro-

grams without writing code. **Code F/X Design Studio Release 6** costs \$799. **Code F/X** (416) 369-2995 www.codefex.com

SAGE U.S., INC. has announced **TimeSheet Professional 6.0**, client/server time-tracking

software with a remote module. The Dallas company said the software adds detailed time data collection to major project management or payroll systems. Pricing begins at \$2,000. **Sage U.S.** (972) 881-3900 www.sageusa.com

Servers & PCs

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Briefs

On the printer front

Canon U.S.A., Inc. — with rival Xerox Corp. firmly in its sights — has said it will enter three new printer segments: high-volume black-and-white copying and printing, high-volume multi-function systems and high-speed laser printers.

Canon also said it will add to its current line of high-speed color printers. Canon claimed that within two years it will gain up to 20% of the midrange and high-end areas now dominated by Xerox.

Meanwhile, Xerox said it will expand its ink-jet printer business to compete directly with Hewlett-Packard Co., which leads the desktop computer printer market.

Hitachi storage

Officials at Hitachi Data Systems Corp. said the Hitachi Freedom 5700E storage subsystem is now certified for use with Tivoli management software from IBM's Tivoli Systems, Inc.

New proxy server

Multi-Tech Systems, Inc. in Mounds View, Minn., has announced the MTPSR-120, an Internet proxy server with two Ethernet ports. The system provides shared Internet access to LAN users, according to Multi-Tech. One port connects to the Internet, the other LAN. In a small to mid-size office, and the other port plugs in to a high-speed cable modem, providing megabit data transfer rates.

The MTPSR-120 costs \$799.

Average number of desktop computers installed at U.S. companies

Fewer than 500 employees 171
More than 500 employees 2,692

Source: Survey of 300 companies (64 with fewer than 500 employees, 136 with more than 500 employees)

Source: International Data Corp., Framingham, Mass.

Clustering goes mainstream

► Business apps require availability once found only at the high end

By Jakumar Vijayan

THE RAPID GROWTH of applications such as Web serving, electronic commerce and enterprise resource planning (ERP) are beginning to push high-availability clustering technologies into the commercial mainstream.

SCO, Inc. and Compaq Computer Corp. recently entered into an agreement that lets SCO deliver UnixWare NonStop Clusters software to a wide variety of customers in markets such as financial services, retail and Internet commerce.

NonStop Clusters for UnixWare is a clustering technology

Samples of the high-availability clustering technologies available for Windows NT and Unix:

- Microsoft Cluster Server for NT: High-availability support only. Allows two-way fail-over.
- Digital TruClusters for Unix and Digital Clusters for Windows NT: Supports clustering for both high availability and scalability.
- Data General Cluster-in-a-Box: Fully prepackaged, high-availability cluster for Windows NT.

that comes from Compaq's Tandem division.

The technology lets users be as many as six Intel Corp.-based servers in a high-availability configuration. So far, Compaq has targeted its clustering products mainly at telecommunications companies.

Under the new arrangement, SCO will work with its own

channel partners as well as Compaq resellers in delivering NonStop clusters to a wider cross-section of customers.

Until recently, clustering typically was used in very high-end Unix and proprietary server environments to improve application uptime. It basically lets users tie two or more servers into a configuration where one server takes on the workload of another in case of a hardware or software failure. The same technology also lets users tie multiple servers together to increase overall processing capacity.

Both capabilities are going to be crucial for users looking to run applications that require nearly continuous availability, such as World Wide Web

serving and ERP.

"Clustering will particularly affect where Windows NT will go," said James Garden, an analyst at Technology Business Research Inc. in Hampton, N.H. Clustering could help concerns about Windows NT's reliability, he said.

Clustering's benefits aren't limited to NT. Millipore, Inc., a manufacturer of purification products in Bedford, Mass., plans to cluster two Unix servers, which run Oracle Corp. and Lotus Development Corp. applications, in a high-availability configuration later this year.

"Clustering... will particularly affect where Windows NT will go."

— James Garden, Technology Business Research

The move is part of the company's bid to ensure more than 99% availability of crucial applications such as E-mail and Notes, said Kevin Danahy, manager of corporate Internet computing at Millipore.

For the company's NT-based file and print servers, Millipore will use RAID technologies and equipment such as hot-swappable drives to ensure that the servers are up at least 96% of the time, Danahy said.

Security Forces, Inc., a

Clustering, page 48

Rewritable CDs gain as storage option

► They cost less per megabyte than Zip disks

By Nancy Dillon

HIS 100M-BYTE Iomega Corp. Zip disks were too small, and his quarter-inch-cartridge tapes, at 30 bytes and more, were too big. Stan Woodcock needed a capacity compromise. He found it in rewritable CDs.

"A CD's 650M-byte capacity is perfect for us," said the network administrator at Riverside Technology, Inc., a Fort Collins, Colo.-based environmental consulting firm.

Woodcock said he bought two Hewlett-Packard Co. rewritable CD- or CD-RW drives because he likes to file a single CD for each client project.

His CD-RW discs, which contain mostly computer-aided design files and weather statistics, are filled with an average of

about 500M bytes each.

HP announced last week a rewritable CD drive called the HP CD-Writer Plus 8100. Competitor Yamaha Systems Technology Inc. will release its rewritable CD drive, the CRW4416, by the end of next month. Both drives offer im-

proved speeds and the ability to archive both CD-RW and CD-recordable (CD-R) discs. (CD-RW drives can erase and rewrite individual files but CD-R drives can't.)

CD-RW discs are costly compared with CD-R discs: about \$45 vs. \$2. But compared with Zip disks, which cost about \$15, CD-RW is cheaper: 7 cents per megabyte vs. 15 cents.

"CD-rewritable drives will enjoy a pretty good market through 2002," said Mary Bour-

rewritable CDs, page 48

Snapshot

PC GROWTH CONTINUES

U.S. PC unit shipments, 1996-2002

Year	Shipments
1996	21.1M
1997	24.8M
1998	28.4M*
1999	32M*
2000	35.3M*
2001	38.7M*
2002	42.2M*

* Projected

Value of U.S. PC shipments, 1996-2002

Year	Value
1996	\$46.3B
1997	\$49.3B
1998	\$52.9B*
1999	\$53.1B*
2000	\$56.2B*
2001	\$61.2B*
2002	\$63.5B*

* Projected

Sources: International Data Corp., Framingham, Mass.

Rewritable CDs gain as option

CONTINUED FROM PAGE 47

don, an analyst at Dataquest in San Jose, Calif. She said that although CD-RW's successor, rewritable digital versatile disc (DVD), is already here, it won't start to overtake rewritable CD until 2001.

Woodcock said rewritable DVD isn't

something he will migrate to any time soon. "[DVD] looks great for movies, but it hasn't yet proven itself as computer media," he said.

Besides, if users are interested in using discs for marketing purposes or to

exchange documents with clients, DVD carries too many risks, Woodcock said. "If we send people marketing discs that they can't read, they're not going to go any further to find out what Riverside Technologies is all about," he said.

"Eighteen months from now may be a different story. But we need assurance that people can read what we send them," he added. (Users need a DVD drive or new multiread CD drive

to read a DVD disc.)

Analysts said CD-RW drives might also be a good choice for business users because they offer three drives in one: CD-ROM, CD-R and CD-RW.

NO MORE DEVICES NEEDED

"With all three, computer buyers don't need to get another removable storage device in addition to the usual CD-ROM drive," said Wolfgang Schlichting, an analyst at International Data Corp. in Framingham, Mass.

But Almir Guimaraes, an information systems manager for the San Francisco Department of Public Health, said he isn't so sure his 1,500 users would use CD-RW for data interchange and desk-top backup. Guimaraes said he is testing a CD-RW drive from Yamaha.

"I still think Zip drives are faster, and Zip disks are easier to protect because you can set passwords," he said. "I can see a CD's high capacity working well for an advertising company or any business with a lot of creative work. But [CD-RW] for an average worker, nah. It's not necessary."

Peter Cunningham, an ear doctor at Audiology Group, Inc. in Fort Collins, said he switched from a desktop tape drive to a CD-RW drive because he needed media with a high level of durability, and CDs have a protective coating. "Legally, I have to keep patient records in perpetuity," he said. □

Clustering

CONTINUED FROM PAGE 47

provider of security services in Charlotte, N.C., is moving some of its larger financial and payroll applications off a proprietary Unix server to Windows NT. "Application availability is definitely a concern for us" in making the move, said Steve Pounds, a controller at the company.

Like Millipore, Security Forces is thinking about implementing a backup NT server to share the load of its main application server in case of a hardware or software failure. "You just can't afford to go down, when you have over 2,600 employees to pay," Pounds said.

Vendors that offer clustering technologies in the Unix and Windows NT space include IBM, Hewlett-Packard Co., NCR Corp., Data General Corp. and Microsoft Corp., with its Microsoft clusters, formerly code-named Wolfpack. □

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WORLD



Managing

PLAYING *the* PAY GAME

*Want your key people to stay?
Money still talks, so here are a
dozen ways to help dole out your
dollars* **BY ROCHELLE GARNER**

How much money does it take to keep valuable IS staff from jumping ship? The issue is as vexing — and as strategic — as any facing American corporations. A company's failure to retain its technical brain trust can damage shareholder value. Many companies have begun to provide perks that make a technologist's heart go pitter-patter: Smoothly paved career paths. The biggest, fastest PCs and workstations. Training and access to the latest technologies. And — dare we say it? — old-fashioned respect.

Still, let's not forget that pay matters. Sure, many will refuse outside offers at double their current pay if they have the respect, workplace quality and training they crave. But others will grab the money and go. The result: spiraling salaries, as companies try to wall in their staffs with greenbacks.

"The danger is that, as the market becomes more stable, companies will be paying those astronomical salaries forever," says Linda Pittenger, a vice president at Hay Group in Philadelphia and managing director of the compensation consulting firm's information technology practice, based in New York.

The way around it: Supplement base salaries with variable pay, such as bonuses paid for milestones, completed projects and in-demand skills.

"When you use a variable approach, you have the chance, as times change, to switch out those elements that no longer make sense," says Bob Monso-

MORE ON MONEY

This week's IT Careers section, tells you how you can shell out the bucks for new employees without alienating the people who already work for you.

And, in next week's Managing section, find out how much your peers make as we present Computerworld's annual salary survey.

tero, director of human resources at Xerox Information Management in Rochester, N.Y. "The key is to think comprehensively — offering a host of elements — since you can't solve retention with only one or two programs."

There's just one hitch: Devising a successful retention strategy with variable pay isn't as easy as it sounds. "I've seen the same-size companies — from the same industry — try the same incentives and bonuses and it not work in one and be a smashing success in the other," says David Foote, managing partner at Cromwell Foote Partners LLC in Stamford, Conn.

But although few hard-and-fast rules exist, plenty of strategies have proved effective. And some, such as the first two that follow, are essential to every company trying to curb information systems turnover.

Federal Express Catherine Davis: The overnight shipper pays bonuses quarterly. "The size of that bonus depends on the level of the project, its importance to the company and [the] staff's level of participation"

1

ASSESS YOUR CULTURE. "An absolute precondition is understanding the politics and culture of any organization before designing any kind of compensation program," says

Jennifer Hodges, senior corporate compensation manager at MCI Communications Corp. in Washington. That means organizing focus groups, talking to executives, surveying customers on IS performance and polling IT staff on how they measure their personal progress. Example: Say your chief information officer wants to beef up IT's customer service or work better with business units. Then make sure that substantially larger bonuses go to those who receive the best marks in customer surveys.

2

MONITOR THE MARKET. Clearly, to stay competitive, you have to pay the going rates. That isn't always easy when SAP specialists, Java programmers and holders of other hot skills can watch their climb each month. The answer: For starters, peruse IT salary surveys at least quarterly. "Market data is critical, but nothing will indicate what's going on more than your own recruiting and retention experience," Hodges says.

"If you are losing programmers, where are they going? What are they getting? And what are new people asking for?"

3

CONSIDER "BROADBANDING." This is the latest human resources craze, in which companies compress, say, 30 job titles and positions into about seven. There may be a \$45,000 salary range within each band, depending on each worker's expertise, experience, project roles and other variables. "This gives us the flexibility to reward the stars, the people with the hot skills and those we've assessed as most important to the company," says Rebecca Jones, an assistant vice president at Reliance Information Technology in New York. Just be aware that this model isn't for every company.

4

PEO BASE SALARIES SLIGHTLY LOW. As with Goldilocks' porridge, base salaries should be neither too hot nor too cold. What's just right? A salary commensurate with the job's worth, overlaid with bonuses. "I have a client that's paying a base of \$50,000 for an SAP configurator, a hot-skill premium of \$15,000 a year that's paid out quarterly, a \$5,000-a-year bonus just for stay-

ing and another \$5,000 in milestone pay," Pittenger says. Total: \$75,000 per year, just what the market is bearing. "What's positive is the company doesn't have to pay \$75,000 forever if the market goes back to \$55,000," she adds.

5

USE THOSE HOT SKILLS. If you're going to pay big premiums for Java, SAP or Cisco expertise, then make sure your professionals are contributing to — and staying on — your strategic projects. "We have a strategic IT plan, which identifies strategic projects requiring specific technology skills," says Laurie Pellegrino, manager of human resources at Novartis Pharmaceuticals Corp. in East Hanover, N.J. "Only those who have demonstrated proficiency in those skills — and are working on the projects we deemed strategic — are the ones who get a hot-skill bonus." Novartis won't say how much, or how often, it pays out its bonuses. But consultants generally agree: A skills premium, equaling 10% to 30% of base salary, should be paid quarterly, in ever-increasing amounts.

6

DON'T WAIT FOR THE MILESTIM. Talk about hot! People working on year 2000 projects are about as torrid as they come. Perhaps that explains why companies have so many variations on this form of variable pay. Some pay quarterly. Others pay a big sum when the employee signs on and promise even more in 2000. Then there's Xerox Corp. It has delayed payment until July 1, 2000, but created a pool of money that each eligible employee can watch grow. But though Xerox can boast a 4% turnover rate, be warned: This approach can be dangerous. "People who have to wait to get their year 2000 bonus will leave now because they can get their money now," Pittenger says. "And if you give it to them now, they will leave in six months. That's why I recommend all bonuses be paid quarterly."

7

PAVE THE MILES WITH GOLD. Think quarterly. "We determine on the front end of every project how much they will be paid," says Catherine Davis, a compensation manager at Federal Express Corp. in Memphis. "The size of that bonus depends on the level of the project, its importance to the company and [the] staff's level of participation. And we pay every quarter because we think it's best to provide pay close to the line of sight."

8

LENGTHEN THEIR STAY. Just how long must certain people absolutely, positively stick around? If it's a matter of years, consider paying a long-term bonus. But in that case, think annually. *Forbes* advises.

9

FOOTE THE PROJECT'S DONE. Go ahead. Pay this bonus as a lump sum. Just make sure the amount's larger than that last milestone bonus.

10

WISH ON A STAR. Ask your CIO whom the company can't live without. Those are your stars (representing no more than 1% of your IT population). The size of their bonus? That's tricky because it depends on what that person can get elsewhere and what the person is worth to the company. What seems to work for most companies (which didn't want to be named for this particular tip): about 5% of the star's annual salary.

11

UNSHACKLE MANAGERS. Some companies dislike rigidly compartmentalized bonuses, preferring to give their managers full discretion in retaining staff. One such company is MCI, a highly decentralized organization that gives executives a pool of money from which to pay. "If an executive decides she wants to reward performance on discrete milestones or on projection completion, she can do it," Hodges says.

12

EXPERIMENT. Try prototyping various bonuses and premiums for your most important projects. Or consider something on a grander scale, like at Xerox, where all IT employees participate in a scheme dubbed "pay vs. risk." The concept: To earn bonuses, employees give up a percentage of their salary. For lower levels, that translates to a 4% pay reduction. Midlevel workers have taken a 7.5% cut. "But all of the bonus programs have paid at least twice the salary cut," Monastero says. This year, the people who gave up 4% have averaged a 12% payback in bonuses. If that approach sounds too scary for your company, do something. "The world is paying too much to attract your people away from you," Monastero says. "That's why it's incumbent to try everything you can." □

Garner is a freelance writer in San Carlos, Calif.

R

SOURCES: CONFERENCES

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...man-
...to be

• **Interchange '98, hosted by the Society for Information Management (SIM)**

Oct. 12-16 at the Walt Disney World Resort in Lake Buena Vista, Fla.

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notably Microsoft Corp.'s Bill Gates, Oracle Corp.'s Larry Ellison and Cisco Systems, Inc.'s John Chambers.

Phone: (800) 778-1997 or (202) 316-6757. Fax: Ashley Pearce at (800) 778-1998 or (202) 316-6774. World Wide Web address: www.gartner.com/symposium.

• **Networld/Interop '98**

Oct. 19-21 at the Georgia World Congress Center in Atlanta.

The big event for networking, Internet and telecommunications professionals. The conference opens with two days of tutorials, followed by three days of conference sessions grouped into seven technology-based tracks.

Phone: (800) 962-6313. Fax: (650) 525-0199. Web address: www.interop.com.

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WEB SITES

The latest information technology research from 15 sources is just a click away:

InfoEdge (www.info-edge.com)

provides information systems managers with a one-stop shop on the World Wide Web. The site is easy to use, with a row of links on the left side of the home page to new and free research, a search engine and an order form. Granted, you get only summaries of the latest research, but InfoEdge also provides browsers with the length, price and order code for each piece of research.

The sources include Gartner Group, Inc., its subsidiary Datquest, The Yankee Group, Bloor Research and Ovum.



Some free Gartner research on the site may be months old, but it's still useful. The papers include the "State of the IT Industry" keynote address from a Gartner conference in April and a chapter on recruitment and retention from a recent Gartner Executive Summary Report. Add it to your bookmarks.

Orlando is a popular site for IT conferences and offers a good opportunity to combine work with some pleasure — such as golf and a minivan.

If you want to plan a work-and-play week, there's a Web site — **Go2 Orlando** (www.go2orlando.com) — that gives you a good feel for where to go and what's going on in central Florida. You can also make jet, auto and hotel reservations by clicking off the home page.

The site also has the latest news on the area's tourism business, and to its credit, it isn't all cheery, upbeat stuff. For instance, it ran a recent *Orlando Sentinel* report (the site is part of the daily newspaper's online division, *Orlando Sentinel Interactive*) that said Walt Disney World will see only modest attendance gains after this year's opening of the Animal



Kingdom theme park.

You can order free brochures through the site. And just before you leave, check out the five-day weather forecast.

JARGON JUDGE

"Laptop"

I love my laptop.

Not only is it portable and as easy to use as any conventional PC I've had, it even has a name I'll abide by.

I don't often rest it on my lap, but I could if I wanted to. It's the right size, the right weight, and I can just see myself propped up in bed, writing my great American novel.

Yes, this Jargon Judge ruling actually favors a technology term. This term has the advantage of being attached to a relatively new computer appliance — one for which a whole vocabulary doesn't already exist. Similarly, it doesn't misappropriate any civilian terms and imbue them with a secret computer nuance, like so many of my previously named favorites — enterprise, legacy, OEM. It's simply that a machine was born and needed a name, and of those proffered, *laptop* has won out.

It isn't just me. Just about everybody — technical or not — calls their pick-up-and-go computer with the screen on the back of the lid a laptop. Ask around, and you'll see.

Of course, in typical industry fashion, vendors for the most part insist on calling laptops something else: notebooks. Am I the only one who sees wirebound pads of paper or three-ring binders with a plastic-stripped pencil case here, rather than a slim box with a flip-up screen? True, like real notebooks, those computers are a place to write things down — that's probably how they got their name. But you really have to say two words — *notebook computer* — to identify them, whereas it's so easy to just say, "Laptop."

So, let's

ANNE MCCRORY

Does any high-tech jargon have you steamed? Or smiling? Tell Anne McCrory, former Computerworld copy desk chief and now assistant sections editor. Her Internet address is anne_mccrory@cs.com.

EXECUTIVE BOOKSHELF

Estimating Software Costs

By Cypers Jones
McGraw-Hill, New York; 700 pages; \$65 (hardcover)

Jones is a big name in the field of quantifying software costs, and his new book, released last month, offers a comprehensive approach to estimating the costs of software, as well as software project management. The book covers various

forms of estimation, as well as available and emerging software management tools.

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Welcome to the new era of government oversight of corporate IT! On July 29, the chairman of the Securities and Exchange Commission sent out 9,000 letters to

corporate executives directing them to comply with elaborate year 2000 disclosure requirements.

This is an epochal event for corporate information management. Year 2000 oversight by the SEC is only the opener for further regulatory interference. Relying on the year 2000 precedent, government regulators will surely extend their reach into security and safety, standards for electronic commerce and certification of software reliability. In the future, many of the key decisions about IT will be subject to the same scrutiny as originators of pollution, purveyors of tobacco or makers of breast implants. Decisions that should have been made by CIOs and corporate executives now will be shaped by lawyers, government officials, lobbyists and legislators.

The SEC's disclosure requirements are more thorough than what CIOs normally would report to their executive committees. Following are some of what the SEC expects to receive:

- An estimate of the material effect of year 2000 failures on a company's business, without taking into account the company's efforts to avoid those consequences, such as fixing its software and correcting its databases. The company must assume it could not be year-2000 compliant in time, regardless of the money spent or planned to be spent. Costs of failure include operating losses expected to result if a company, its suppliers or customers fail to correct year 2000 deficiencies.
- A detailed analysis of the readiness of all embedded systems.
- An itemized schedule showing how far a firm has progressed toward year

2000 compliance.

- Progress, as defined by the percentage of the year 2000 budget spent to date for the assessment, remediation, testing and compliance phases of millennium projects.

- Analysis of a company's year 2000 issues relating to third parties with which they have a material relationship.

- The cost of becoming year 2000-compliant, including money spent to date and estimated costs to complete the work. At the end of each quarter, companies must disclose how much of the total estimated year 2000 project costs have already been incurred.

- Identification of the source of year 2000 funding, including the percentage of the IT budget used.

- Methods used to secure independent verification and validation of risk and cost estimates submitted to the SEC.

- A description of the contingency plan for handling the most likely worst-case scenarios, by answering the question, "What will the company do if it is not ready?"

The 17-page SEC disclosure statement represents what corporate management should have been asking about the costs and risks of all their IT ventures. As an intracorporate reporting requirement, what the SEC is asking is reasonable.

But because corporate management, IT purveyors and insurance firms failed to address the potential consequences of year 2000 disruptions, we will now be stuck forever with the government telling us what to do and how to manage information systems with a sense of political accountability.

I approve of what the SEC has done, though I dislike it just as I hated taking spotfish of cod liver oil during World War II when it was the only vitamin supplement available.

MANAGEMENT IMPLICATIONS

One should recognize that the SEC didn't act capriciously. It was guided by congressional hearings that reflected politicians' anxieties to divert any possible blame for failures of the U.S. information infrastructure. Legislation is sure to follow, imposing constraints on information management practices. This situation is analogous to the securities legislation of the 1930s, when failures in the financial markets induced Congress to create the Federal Trade Commission, the SEC and other regulatory agencies.

The SEC Act of 1934 led to financial accounting standards and certification by independent auditors. It elevated the role of the chief financial officer. The entry of government into the systems arena would be positive if it limits itself to emphasizing the increased importance of IT standards and stimulating the creation of independent verification and validation institutions. Its most constructive consequence would be to encourage placing CIOs in positions of fiduciary responsibility for the custody of information assets.

How bad will these SEC requirements be? That depends on how well we adapt to the new circumstances. Corporate management and IT management better get ready to operate under the new rules voluntarily — before government regulators become enforcement inspectors. □

Strassmann testified before the Senate in July 1995 that the legitimacy of CIOs would finally arise from regulations requiring the assignment of responsibility for the integrity of information systems. His Internet address is csa@stacorp.com.

f.y.i.

IT managers face understanding gap

It seems that the IT skills gap isn't the only gap information technology man-

agers have to contend with. There's a chasm between their views and those of senior management on just how important the skills gap is.

In a recent survey by the Atlanta-based Information Management Forum (IMF), more than 80% of IT managers rated IT skills retention as a very critical issue, while just over 30% of senior management felt the same way.

That isn't the only issue on which IT management and the executive suite failed to see eye to eye.

Nine out of 10 IT managers said the alignment of business and IT requires strengthening, and 60% reported a gap between how they and senior manage-

ment view the role of IT in business. They blame the gap on a lack of good communication processes, and a lack of understanding of IT by business and vice versa.

"The pressure is being felt at the IT level, and it's not being communicated effectively," says Chuck Lybrook, executive director of IMF, which conducted a series of surveys of information systems managers in 30 to 50 Fortune 1,000 companies.

"Senior management is also being driven by other issues," he says, "and there's always the feeling that it will somehow get it done; they always come through."

In other findings, almost three quarters of IT managers reported that human resources was one of two critical issues, and 60% named the skills shortage as one of two chief barriers to achieving IT objectives. More than half the managers expected significant changes in IT skill sets in the next two years.

The day five IT/MR issues cited were retention, recruiting, compensation, career path and skills development. Most IT managers surveyed reported a staff turnover rate of at least 10%, and about a quarter reported rates higher than 10%. Three out of four said the rate is increasing. — Kathleen McInerney

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Review Center

Analyst Advisory

You're spending upward of \$200,000 on IT analyst firms. So, what are you getting?

By Natalie Engler

You're a CIO faced with a multi-million-dollar information technology purchasing decision. To whom do you turn? If you're like those we interviewed, you'll consult with at least one IT analyst firm. What you'll get: help narrowing down supplier choices, advice on your IT strategy and reassurance as to whether or not a decision is sound.

What the firms can't do, however, is tell you what to do. "If you're in front of the board and say 'Gartner said' or 'Meta or Forrester said,' it really doesn't mean anything. Sometimes they don't get it right. It's your job to make the call," says Steve Edmonson, vice president of IT and chief information officer at R. P. Scherer Corp., an international pharmaceutical company with \$600 million in sales.

During the past five to eight years, research companies such as Gartner Group, Inc., Forrester Research, Inc. and Giga Information Group, among others, have played an increasingly vital role, says Jim Webber, president of Omicron, a 120-member consortium of large IT-using companies, based in Mountain Lakes, N.J. Just how good are these firms at taking up the slack? To find out, we asked the heads of IT in nine corporations. Here's what they said:

Snapshot

MOST COMMON CRITICISM OF ANALYST FIRMS:

Tendency to "slice the baloney," or sell services in thinner and thinner increments to get companies to spend more money.

TOP FIVE BENEFITS OF ANALYSTS:

- Validation and fine-tuning of technology strategies
- Narrowing down of suppliers and partners
- Help in negotiating better prices
- Identifying product weaknesses early on and preventing integration problems
- Providing access to high-level people in the industry

INDIVIDUAL STRENGTHS (and MOST FREQUENT USE):

- Gartner Group:** Size and breadth (primary service)
- Forrester Research:** High-level business-oriented analysis (used for communicating with non-IT executives)
- Giga Information Group:** Technology trends. One-on-one relationship (used for validating primary services)
- Meta Group:** Manufacturing industry-specific information. Call center and help desk benchmarking (used for validating primary services)
- Corporate Advisory Board Co.:** Located in Washington, its research is geared to CIOs of Fortune 100 companies (used for human resources issues and compensation and retention strategies)

Engler is a freelance writer in Arlington, Mass.

JOSEPH SMIALOWSKI

Senior vice president and CIO
Seers, Roebuck and Co.
Hoffman Estates, Ill.

IT ANALYST FIRMS USED MOST OFTEN:

1. Gartner
2. Ciga (replaced the Meta Group, Inc. service)
3. Corporate Advisory Board (replaced Meta Group's CIO service)

HOW AND WHY EACH IS USED:

Gartner: For broad-based research and access to research analysts who are specialists in a wide range of technologies

Ciga: For analysis of IT trends and for a one-on-one relationship.

Corporate Advisory Board: For coverage of large-company CIO issues, rigor of analysis.

JONATHAN FORNACI

CEO
IBIS Consulting, Inc.
San Francisco
(Former CIO, Genstar Container Corp., a division of GE Capital Services, Inc.)

SPENDS \$100,000 per year on IT analyst fees and subscriptions (at Genstar).

IT ANALYST FIRMS USED MOST OFTEN:

1. Gartner
2. Dataquest
3. International Data Corp. (IDC)

HOW AND WHY EACH WAS USED (AT GENSTAR):

Gartner: To streamline the decision-making. For example, on picking the best JavaBeans, we asked for the leading companies and narrowed the list down to three. Then we did the detailed analysis on the three ourselves.

Dataquest: To justify projects to peers and the CEO.

IDC: To make us smarter. The annual survey of where the industry is going is required reading for my entire management team.

BEST EXPERIENCE WITH AN IT ANALYST FIRM:

Five years ago, I was doing an initial evaluation of

PeopleSoft. It was going to be a large payroll implementation for a \$150,000 company. PeopleSoft still didn't have the reputation. Gartner arranged for me to talk with Dave Duffield, the CEO. That meeting helped alleviate a lot of my concerns. Later, when I went to another company and did the first global rollout of PeopleSoft Financial Systems, we ran into some issues. But because of the relationship I had developed in that initial meeting with Duffield, I was able to put some pressure on them to get this thing done.

BEST VALUE: Analysts are good at helping figure out which questions will get you the information you need from a vendor.

WHAT THE FIRMS COULD DO BETTER: Better understand my business.

ADVICE: A lot of people take what they get and complain, instead of making sure they get what they want. Treat these firms as you would a restaurant: When you don't like the food, send it back.



WHICH TECHNOLOGY/MANAGEMENT ISSUES EACH IS USED FOR:

Gartner: Analysis of specific technologies, products and vendors, plus the "magic quadrant," which offers a quick way to zero in quickly on the software and hardware providers you should be considering to meet your needs.

Ciga: Industry issues such as year 2000 technology direction or Microsoft product direction.

Corporate Advisory Board: Human resources and IT governance issues.

WHAT THE FIRMS COULD DO BETTER: Try to match their services to their customer's actual needs vs. selling services that aren't needed.

ADVICE: Know your objectives before selecting an analyst firm. Buy only those services that you need, and never enter into long-term contracts, i.e., more than two years. At times, our technical curiosity gets in the way of making rational choices. Guard against that.

EVELYN FOLLIT

Vice president and CIO
Tandy Corp.
Fort Worth, Texas

SPENDS more than \$200,000 per year on IT analyst firms.

IT ANALYST FIRMS USED MOST OFTEN:

1. Gartner
2. Forrester
3. Ciga

HOW AND WHY EACH IS USED:

Gartner: Tandy uses the analyst contact service when making technology acquisition decisions. Gartner also helps answer questions such as: How should we be structured or organized? Should we keep a data warehouse on the mainframe? Last, the analysts can give us benchmarks of what companies outside our industry are doing.

Forrester: For the executive summaries. I can read them over breakfast or on a plane.

Ciga: As a third-party validation. We pick up things from the other two and make sure they are being objective.

HOW PAYBACK IS MEASURED:

We have created a database tracking the value of the services. My team will sit down and say, "This is what we spent, this is what we did, and this is what we should go back for in terms of the targeted amount we'll be spending."

WHICH ISSUES EACH IS USED FOR:

Primarily Internet and global network connection.

HOW HAVE ANALYST FIRMS HELPED THE COMPANY:

They have saved us money. We'll go back and find out what firms we're paying for services and negotiate better discounts.

ADVICE: Buy only what you need and do not commit to multiyear contracts.

So, what are you getting? page 58



So, what are you getting?

CONTINUED FROM PAGE 37

Snapshot

ADVICE FROM CIOs:

- Know what you want from analyst firms.
- Review their performance and your needs on a regular basis.
- Never enter into long-term contracts.
- Look for ways to leverage the basic services to address your specific needs.

JEFF GELTZ

Director of information systems
AllEnergy Marketing Co.
Woburn, Mass.



SPENDS less than \$5,000 per year on reports from IT analyst firms. Subscribes to none.

BEST EXPERIENCE WITH AN IT ANALYST FIRM: I was looking for a Unix platform a year or so ago. The vendor I was using for the selection process, Workgroup Solutions, handled a number of products. They gave me an Aberdeen report and a Forrester report. Right there in print were all of my suspicions. It was fascinating.

The Aberdeen Group report showed that Hewlett-Packard owned 49% of the market. That shocked me. The other vendor I was considering had only 9%.

The Forrester report showed graphical representation of a horse race with certain criteria and which vendors met them. To me, that was extremely valuable.

WHAT THE FIRMS COULD DO BETTER: I've seen some stuff that's been shallow. They try to bulletize a lot. They don't want to necessarily go on too long and have people think it's too wordy. But if I'm going to spend money on these, I want some more beef.

JOHN STEVENSON

Vice president of information management
Bristol-Myers Squibb Co.
New York

IT ANALYST FIRMS USED MOST OFTEN:

- Gartner
- Giga
- Forrester

HOW ANALYST FIRMS ARE CHOSEN: A half-dozen people who are required to know industry best practices issues with technology determine whether we get our money's worth out of each.

HOW HAVE ANALYST FIRMS HELPED THE COMPANY: They've helped avoid collision in advanced releases that would cause outages at the server level or individual PC level. They've given us the current trend on pricing in certain technologies. And they've helped answer questions such as: What's the affordability of switching to NT from your current suite and how does it work?

WHAT ANALYST FIRMS CAN'T DO: They can't make the decision for you.

WHAT DO YOU WISH ANALYST FIRMS WOULD DO BETTER? Continue with all of the media options that we could possibly use from online analyst interaction off-hours to electronic distribution to paper distribution to telephone to in-person consultation.

ADVICE: Be aware of how to leverage their services. They can help more than you may think. We've asked some unusual questions, and they've come back with some very good opinions.

Snapshot

Some of the key research firms identified by current and

GARTNER GROUP, INC.
CEO/president: Murray Fernandez
Headquarters: Stamford, Conn.
Phone: (203) 316-1111
Web: www.gartner.com

Employees: 2,800
Analysts/consultants: 775
Clients: 11,000
Revenue: \$161 million
Revenue by vendor client: n/a

SERVICE AREAS: 1. IT management
2. Networking 3. Year 2000 4. Total cost of ownership 5. Hardware and operating systems

INFORMATION SOURCES
Vendor briefings: 15%
User surveys: 20%
Interviews with user clients: 50%
Hands-on product evaluation: 15%

What sets your firm apart from the competition? "As the world's leading authority on information technology, Gartner Group provides clients with a wide range of products and services in the areas of IT advisory services, management, research, decision support, analysis, consulting and training. Gartner Group's unique capabilities and resources help bring clarity to the direction of the world's hottest and most volatile industry."

FORRESTER RESEARCH, INC.
CEO/president: George F. Colony
Headquarters: Cambridge, Mass.
Phone: (617) 457-7090
Web: www.forrester.com

Employees: 300
Analysts/consultants: 50
Clients: 1,000
Revenue: \$40.4 million (1997)
Revenue by vendor client: n/a

SERVICE AREAS: 1. Online banking and finance 2. Internet advertising 3. Interactive technology 4. Consumers online 5. Electronic commerce

INFORMATION SOURCES
Vendor briefings: 5%
User surveys: 90%
Interviews with user clients: 2%
Hands-on product evaluation: 1%

What sets your firm apart from the competition? "Forrester's value-added is reflected in our ability to look at and analyze markets that are yet to be formed, take a stand on difficult subjects and deliver the 'what-if-answers' to our clients."

GIGA INFORMATION GROUP
CEO/president: Gideon I. Gartner
Headquarters: Cambridge, Mass.
Phone: (617) 518-9900
Web: www.gigaweb.com

Employees: 300
Analysts/consultants: 61
Clients: 821
Revenue: \$27 million
Revenue by vendor client: 90%

SERVICE AREAS: 1. Year 2000 compliance 2. Data management 3. Electronic commerce 4. Enterprise platforms 5. Enterprise networks and communications

INFORMATION SOURCES
Vendor briefings: 90%
Interviews with clients: 64%
User surveys: 5%
Hands-on product evaluation: 1%

What sets your firm apart from the competition? "Giga Information Group's Advisory Service is different from its competitors' services by virtue of its single service model. By eliminating the multiple and artificial 'service' boundaries our competitors embrace, our analysts are able to focus their efforts on the key cross-technology issues our clients are dealing with in a collaborative and synergistic manner."

Snapshot

CIO PICKS:

(And how many of the nine CIOs said they subscribed)

1. Gartner (7)
2. Forrester (4)
3. Giga (3)
4. Meta Group (2)
5. Dataquest/Gartner (1) IDC (1) Corp. Advisory Board (1)

GARTNER LEADS IN SURVEY:

Over 100 surveyed 43 member companies that spend an average of \$100,000 per year on IT analyst firms. This is what it found:

Companies using Gartner Group: 82%

Companies using Forrester Research: 20%

Companies using Meta Group: 15%

Companies using Giga Information Group: 10%

Source: Over 100, a 100-member consortium of large IT-using companies, based in Mountain Lakes, N.J.

WILLIAM FRIEL

Senior vice president and CIO
The Prudential Insurance Company of America
Newark, N.J.

IT ANALYST FIRMS USED MOST OFTEN:

1. Gartner
2. Meta
3. Forrester

HOW AND WHY EACH IS USED:

Gartner has good general IT coverage. Also, we can get a lot of information through the Web, which makes it easy to distribute.

Meta is used primarily for information on data center operations, distributed computing and networking.

Forrester we use for the investment community. It does a good job of segmenting the Internet, looking at target audiences, best practices and who's best at commercializing the Web and how.

HOW THE INFORMATION IS USED: As input for making decisions. As verification to our own planning processes and as a grist for further analysis ourselves.

WHAT ANALYST FIRMS COULD DO BETTER: Sometimes they can get caught up in their own view of the world, and I think they should be careful about pricing.

ADVICE: Evaluate every year whether or not they are continuing to add value.



former CIOs as providing broad technology services for user organizations or a mix of users and vendors

META GROUP, INC.
CEO/president: Dale Kunkin
Headquarters: Stamford, Conn.
Phone: (203) 573-6700
Web: www.metagroup.com

Employees: 349
Analysts/consultants: 150
Clients: 1,500
Revenue: \$5.2 million
Revenue by vendor client: n/a

SERVICE AREAS* (Not ranked) Year 2000, electronic commerce, security, infrastructure, customer relationship management, outsourcing

INFORMATION SOURCES

Vendor briefings: 5%
User surveys: 10%
Interviews with user clients: 80%
Hands-on product evaluations: 5%

What sets your firm apart from the competition? "Meta Group differentiates itself from other information providers through its commitment to highly personal service, bottom-line answers and objectivity. To support this promise, Meta Group maintains a client-to-analyst ratio of 50:1 — the lowest in the industry — and retains almost 50% of its revenue."

INTERNATIONAL DATA CORP.
CEO/president: Kirk Campbell
Headquarters: Framingham, Mass.
Phone: (508) 873-8300
Web: www.idc.com

Employees: 650
Analysts/consultants: 375
Clients: 3,900
Revenue: \$105 million (fiscal 1997)
Revenue by vendor client: n/a

SERVICE AREAS* 1. Personal systems 2. Storage 3. LANs 4. Peripherals 5. Commercial systems and servers

INFORMATION SOURCES

Vendor briefings: 25%
User surveys: 25%
Interviews with user clients: 25%
Demand-side research: 25%

What sets your firm apart from the competition? "IDC is the only IT research company committed to providing global analysis with local content in all major worldwide markets. The use of consistent methodologies and definitions on a global basis ensures clients receive the most accurate and complete strategic world-wide data."

THE YANKEE GROUP
CEO/president: Howard Anderson
Location: Boston
Phone: (617) 555-5000
Web: www.yankeeigroup.com

Employees: 150
Analysts/consultants: 90
Clients: 700
Revenue: n/a
Revenue by vendor client: n/a

SERVICE AREAS* 1. Internet/Intranets 2. Electronic-commerce management 3. LANs 4. WANs 5. Electronic-commerce technology

INFORMATION SOURCES

Vendor briefings: 40%
User surveys: 40%
Interviews with user clients: 20%

What sets your firm apart from the competition? "The Yankee Group emphasizes the close relationship formed with its clients. We are able to provide ongoing value and actionable insight through analyst interaction supplemented with a steady stream of relevant publications."

ABERDEEN GROUP, INC.
CEO/president: Tom Willmetts
Headquarters: Boston
Phone: (617) 733-7890
Web: www.aberdeen.com

Employees: 53
Analysts/consultants: 40
Clients: n/a
Revenue: n/a
Revenue by vendor client: n/a

SERVICE AREAS* 1. IT management/business issues 2. Customer interaction software 3. Electronic-commerce technology 4. Internet/intranets 5. LANs/WANs

INFORMATION SOURCES

Vendor briefings: 30%
User surveys: 30%
Interviews with user clients: 40%

What sets your firm apart from the competition? "Aberdeen's mission is to analyze how technology change impacts business. Aberdeen focuses on the dynamics of business change that will be created by technology change."

Research by Carla Catalano

* Service areas: Firms were asked to rank the five technology and management areas that they consider to be their greatest strengths. Several firms elected to rank service areas by volume of client use. Each firm was asked to break down its vendor services, but only Giga Information Group provided that information.

** Majority done at Giga's request.

STEVE EDMONSON

Vice president of IT and CIO

R. P. Scherer Corp.

Toy, Mich.

(Former director of IS in the chemicals sector of AlliedSignal, Inc.)

At R. P. Scherer, he negotiated a contract for \$35,000. At AlliedSignal, his division (one of 10) spent close to \$60,000 per year on IT analyst fees and services.

IT ANALYST FIRMS USED MOST OFTEN: R. P. Scherer will use Gartner Group, AlliedSignal, Gartner and Meta.

HOW THEY'RE CHOSEN: We came to consensus on three main criteria. The firm had to: 1) understand not only U.S. implementation of technology, but international as well; 2) be a stable business; 3) provide access to analysts.

BEST VALUE: We have taken our strategy and sat down in the Gartner Group headquarters with analysts to review our strategies and thinking. We have them shoot holes through it or ask questions and help us understand what we put together. We use their magic quadrant to nar-



row the scope as part of our due diligence in the selection process.

INDUSTRY-SPECIFIC USAGE: One reason we used Meta at Allied was that we thought they had a better feel for our industry. But now so many companies are conglomerates, it's hard to talk about industry.

HOW ANALYST FIRMS HAVE HELPED: We have been going down one path, and they've been able to tell us that vendor is in trouble or that technology is becoming rapidly obsolete or a new technology is on the horizon.

WHAT THEY CAN'T DO: They hedge their bets. Sometimes we walk away from our discussions not sure what's really been said other than that they narrowed the scope for us.

PITFALLS: The Gartner Group and Meta and others can drive the market. But sometimes the market can't react quickly enough. Once, the Gartner Group recommended that an enterprise resource planning vendor was a "best in class" vendor. With Gartner's recommendation, the market lined up behind it, and people started to use the product. But the product didn't have the functionality Gartner would have you believe, and the vendor didn't have the technical support to meet the demand. That vendor has been a disaster for every client that has tried to implement its system.

JOHN CROSS

Head of IT,

BP Group,

(The British Petroleum Co. PLC)

London

SPENDS more than \$250,000 per year on IT analyst fees and approximately \$100,000 per year on related research.

IT ANALYST FIRMS USED MOST OFTEN:

1. Research Board

2. Forrester

3. Gartner

WHY THESE FIRMS:

The Research Board [a highly exclusive organization comprised of CIOs in Fortune 40 companies] operates at a very high strategic plane. They can command Lou Gerstner, Bill Gates, Scott McNeely, Marc Andreessen — the Who's Who of the IT industry — to talk to us about their research and answer tough questions.

Gartner: They look at a wider perspective.

Forrester: We see a fair degree of overlap between Gartner and Forrester, and we don't see much point in having both.

OTHER RESEARCH SOURCES:

The Corporate Advisory Board. I found it disappointing. They have some bright people, but I'm not sure their research topics are being done well.

CSC Index: We've been long-term users. But over the last year, we've dropped them because we thought the quality has fallen. But now they are trying to reposition their services, and so I'm re-examining them.

Stanford Research Institute (SRI) Business in the Third Millennium project: British Petroleum sponsors this five-year piece of funded research by major industry players. The project is looking at the consequences of the digital era.

Benefits of sponsoring the SRI research: SRI is creating thought leadership. It is not an analyst firm, but to me it is a form of research. The analyst takes what is and analyzes it to comprehend it. SRI takes what is unknown and tries to create a picture.

ON CONTRACTS: I sign one-year contracts. A year is a lifetime in my world.

ADVICE: You have to review what you really want, what you're searching for, and test that against what you're getting. In the end, you have to build your own personal knowledge base of the marketplace.

JIM KINNEY

CIO

Kraft Foods, Inc.

Northfield, Ill.

IT ANALYST FIRMS USED MOST OFTEN:

1. Gartner Group

2. Forrester

3. From time to time, we purchase specific reports from Giga and Meta

WHY THESE FIRMS:

Gartner is almost a one-stop shopping center. If we want to look at enterprise resource planning vendors or main-frame technology or the Internet, we could find that all within Gartner. Second, the depth of their analyst talents is impressive. We like Forrester's reports on leadership strategies.

HOW THEY'RE CHOSEN: Criteria include responsiveness and quality of the research content, the comprehensiveness of the offering and value. We don't choose the low-cost service; we choose the one with the most value.

HOW ANALYST FIRMS HAVE HELPED THE COMPANY:

Reports helped with our move to a North America-wide TCP/IP network.

MAIN CRITICISM: There's a tendency to expand the number of services they offer and the revenue they generate. We have to buy 20 different services to achieve what we could formerly access with eight or nine.

ADVICE: We ask reps from the firms to meet with our organization on site at least once a year, at times more often, because people who are new to Kraft or in new positions don't always appreciate all that is available to them through the analyst services. Also, you have to be a skeptical buyer. And you have to stop every once in a while and ask: "Am I getting all that I want? Am I getting the service and response that I need?"






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In Depth

GLOBAL DIRECTORIES

We visit three IS shops that are braving uncharted waters in search of streamlined network management

By ELISABETH HORWITT

"Global directory infrastructure." The phrase doesn't exactly trip lightly off the tongue. Nevertheless, "in our client base, everyone is extremely interested" in it, says Gary Rowe, executive vice president at The Burton Group Corp., a Midvale, Utah, consultancy. Directory-enabled applications can save large companies millions of dollars in systems administration costs.

According to a report from Forrester Research, Inc. in Cambridge, Mass., the average Fortune 1,000 company had 181 directories last year; 42% synchronized those directories manually. A global directory tracks and points to information in user records that can be scattered across multiple databases and directories. Key information includes log-on name, network machine address, security clearance and job title. Directory-enabled management is in its infancy, but early adopters report payback from streamlined systems administration tasks and improved service. Many companies are struggling with "step one, which is building a consolidated directory infrastructure" from what may be dozens of proprietary networked servers, systems and applications, Rowe says.

Emerging products and standards are bringing the integrated global directory closer to reality. Microsoft Corp. and Novell, Inc., the two leading network operating sys-

tem-based global directory vendors, are aggressively linking their directories to third-party servers, applications and network architectures. X.500-based metadirectories from companies such as Control Data Systems, Inc. in Arden Hills, Minn., and Toronto-based Zoomit Corp. promise (but don't yet deliver) integration and interoperability for multivendor directories. Standards are immature, and key products such as Microsoft's Active Directory Service are in the vapor stage. Still, many corporations think now's the time to get moving. What follows are case histories of three global directory projects.

Health First's Mark Amey says that, while standardizing PC configurations was painstaking, the effort has paid for itself in reduced ownership costs and IS grunt work.

Health First

GOAL: Reduce cost of PC ownership.

HIGHLIGHTS: User accounts are now created in five minutes — not hours or even days. Thirteen technicians handle 4,500 devices.

SNAPS: Prerequisite standardization of software and hardware took six months.

NEXT STEP: Extend program to Unix. PeopleSoft applications.

"In health care, there's a strong initiative to reduce cost of ownership," says Mark Arney, director of technical services at Health First, Inc.

To that end, the Rockledge, Fla.-based health services company is trimming the fat from PC administration in user interface, software management and access control.

The foundation for these systems is Novell's global directory, Novell Directory Services (NDS), and the new Zenworks, a suite of NDS-based applications that provide centralized software distribution, desktop maintenance and user access management.

Arney says the company has already achieved universal access. Users can log in almost anywhere and access all their applications. That's

important for Health First's medical, technical and support workers, who move frequently among headquarters, three hospitals and more than 60 other sites.

One time-consuming but crucial preliminary step to providing universal access: standardizing PC software and hardware configurations. Arney says, which took six months for 1,200 PCs.

But the effort quickly paid for itself by eliminating large amounts of administrative grunt work. For example, Health First has added another 1,100 PCs simply by ordering the standard configuration from its PC vendor, according to Dan Resnair, a Health First network engineer. And when a PC goes on the Fritz, a local worker can swap in a new machine, and central information systems "can fix the problem at our leisure" instead of rushing to the site, Arney says.

Standardized configuration also lets Health First do automated software management through Zenworks. The program creates an NDS object containing all configuration information for a given software launch and defines who receives the package: an individual user, a group or the whole enterprise.

The next time affected users log on, the appropriate software is downloaded to their desktops.

Health First — and Novell — must still extend the NDS umbrella to other systems via the widely supported standard Lightweight Directory Access Protocol (LDAP), which already provides links to the company's Windows NT and intranet installations. Health First is working on LDAP links between NDS and its IBM AIX and Unix platforms. And it eagerly awaits PeopleSoft, Inc.'s promised support of LDAP and NDS.

That will let administrators automatically propagate user record changes, additions and deletions from NDS out to Health First's PeopleSoft human resources and financial records — and close potential security loopholes. Tesenair says.

Widener University

GOAL: Link 11,000 students across three campuses.

HIGHLIGHTS: Early adoption lays groundwork for powerful, flexible network.

SNAPS: Early adoption puts school on bleeding beta edge.

NEXT STEP: Extend pilot program to entire institution.

While other organizations wait for policy-based networking products and standards to mature, Widener University has already laid the groundwork for such systems — and has even reaped a few benefits.

By fall, the Chester, Pa., school plans to have at least a beta installation of iCon Corp.'s Policy Manager and Server (due to ship in the fourth quarter) up and running, according to Gary L. Habermann, Widener's director of technical resources.

When a user logs on, Policy Manager looks up information such as title, location and group, then checks it against rules on the policy server to determine what resources to grant the user.

A vice president, for example, might be guaranteed more bandwidth than a low-level manager; a network administrator might access applications from which a student is barred.

The university already used an existing iCon capability to automatically determine which remote LAN a given user joins upon log-on, based on rules, Habermann says.

But trying all relevant directories and files to NDS saves administrators from "doing manual [user record] updates in five different places, which is always a killer," he says.

Using a global directory also lets network administrators apply policies and manage user information in a more granular, dynamic fashion. "For example, instead of saying, 'All students get these privileges,' we can say, 'This student gets access to this database while he's doing this special project,'" Habermann says.

Right now, NDS links only about 1,100 users to Novell NetWare-based file and printing services. But a year from now, when students are added, that figure will be about 11,000, according to Habermann.

Habermann's group spent six months designing an NDS directory schema "to work for three campus environments, each with its own registrar and admissions office," Habermann says. "Then we threw it out and redid it in about two months."

Then there's the job of extending NDS into all the proprietary network operating system and application-based directories out there, such as an X.500 E-mail directory from Control Data. The goal is "one access point instead of four or five," Habermann says.

He says he expects to have a single directory looking this up. But "I would be really excited if we were done by fall of 1999," he adds.

Unilever

GOAL: Improve internal services at \$50 billion multinational.

HIGHLIGHTS: Immediate savings of \$1.6 million per year on E-mail alone.

SNAPS: Sheer size, stunningly diverse installed base.

NEXT STEP: Keep eye on business benefits while trying in Unix, SAP, Oracle systems.

Three years ago, Unilever PLC's information technology division wondered how it could improve internal services on cost, speed and quality of service.

It became clear that a key driver "was moving to a consistent way of providing services to all users," says Martin Armitage, head of global infrastructure at the international packaged goods company. "We realized we needed a single directory."

But setting up a single global directory was no small task for a company with about 70,000 desktops in 450 companies worldwide. Sheer size was one challenge. The other was how to impose a single global infrastructure across a diverse installed base of application- and server-specific directories.

Unilever eventually went with a metadirectory: a centralized infrastructure that provides a central point from which to locate, synchronize and manage user objects and records across multiple proprietary directories.

It took a couple of years for Unilever to settle on the metadirectory. First, Armitage's group focused on an immediate need to integrate five proprietary E-mail systems into a consistent, global messaging infrastructure. At the time, Unilever's 60,000 E-mail users had individual desktop directories routing messages. The problem was, there were 2,000 E-mail name and address changes each day. Unilever was paying a third party about \$1.6 million per year to synchronize those changes and update desktop directories once a week. "That meant 1% to 2% of directory entries were always wrong, which meant 1% to 2% of your messages wouldn't reach their destination," Armitage says. So Unilever went looking for a "directory product to synchronize all E-mail directories, that could be run in-house and updated... four times a day," Armitage says. The final choice was Control Data's MailHub package, which cost about \$400,000 to implement.

The benefits went beyond saving on third-party costs: Compliments on the improved E-mail delivery started coming in quickly. Unilever then "jointly invested with Control Data the vision of using the X.500 directory to view and update all the other directory technologies," including those specific to NT and Unix servers and network applications such as Notes, Armitage says. Unilever is rolling out the resulting product, Control Data's Rialto Global Directory/Meta Edition. It already manages the directories of NT, Lotus Notes and Control Data's Interstar E-mail system. O

Horvitz is a freelance writer and editor in Newton, Mass. Her Internet address is ehorvitz@compuserve.com.

HealthFirst.



WHAT'S HAPPENING TO OUR PAYCHECKS?

Job Title	1992	1993	1994	1995	1996	1997	1998
Chief information officer	\$77,000	\$79,000	\$108,000	\$92,000	\$96,000	\$123,000	\$116,000
Director of networks	\$47,000	\$51,000	\$69,000	\$70,000	\$70,000	\$74,000	\$73,000
Senior systems analyst	\$48,000	\$50,000	\$52,000	\$52,000	\$54,000	\$56,000	\$59,000
LAN manager	\$41,000	\$41,000	\$48,000	\$47,000	\$47,000	\$53,000	\$54,000
Programmer/analyst	\$36,000	\$38,000	\$41,000	\$37,000	\$39,000	\$43,000	\$45,000

All figures have been rounded off to the nearest thousand and represent total compensation, including base salary and bonuses.
Source: Compustat's Annual Salary Survey for each year shown, including the 1998 survey to be published next. 7

BY CLAIRE TRISTRAM

Robbing Peter to pay Paul

Attracting the best IT employees with expensive gifts often means neglecting the ones you already have

Do you find yourself constantly out of breath in the ongoing race to keep existing employees happy while still paying enough to attract new information systems talent? Well, no wonder — this is one crowded field.

In a world where programmers with the right skills and experience are a scarce commodity, IS managers face a classic catch-22. Attracting the best new employees often means outpaying the competition. It can cost a staggering 15% in sign-on bonuses to land some critical skills.

But pay a premium to attract new people, and you might invite existing staff to seek better pay elsewhere. Then where are you? With more vacancies than before you began.

Most IS managers are responding with a strategy that includes market research, midyear adjustments and incentives such as flexible work hours and training. Sometimes, that still isn't enough.

"Good IT professionals can always find more money elsewhere," says Robert Reeg, vice president of systems development at St. Louis-based MasterCard International, Inc. "So managing their compensation becomes a question of matching market rates and then providing the kind of environment where they'll want to stay."

IS managers set salaries at competitive rates, just about all use salary surveys to learn what IS professionals are being paid in their geographic area, then attempt to match those rates. But most don't use salary as the way to differentiate themselves.

Frustrated with last year's skyrocketing payrolls

and unrealistic expectations by many less-experienced IS professionals, managers are trying to stay minimally competitive while seeking other means to recruit and retain needed talent.

"We try to take salary off the table as a reason to leave. But then we need to go beyond that to give them a reason to stay," says Bruce Reiden, vice president and chief information officer at Care New England, a three-hospital health care system in Providence, R.I. "If we're not paying competitive rates, then of course we're going to lose people. If someone can go across the street and get 15% more, then they will. After you meet those rates, though, you have to provide other reasons for people to stay. We've found that treating people with respect and allowing them the freedom to pursue their own goals goes a long way in keeping our employee turnover low."

To retain employees, some managers employ midyear or even quarterly salary reviews and frequent bonus plans — with emphasis on frequent. Reeg, for example, implemented a "legacy retention program" at MasterCard that offers employees

quarterly bonuses if they stay on project teams supporting critical legacy applications that often run on older technology. He also offers bonuses to employees with what he considers "critical skills." "It's a constantly changing list," Reeg says. "What's considered a critical skill today is the language du jour tomorrow. We monitor supply and demand carefully so that we're really sure we're targeting the skills we need to pay a bonus for."

Others eschew frequent bonuses, citing the problems that might arise from treating IS employees differently from other employees.

"Several years ago, we had a nursing shortage and tried special bonus plans, and it caused a lot of bad feelings," Reiden says. "And as IS employees, we aren't directly involved with patient care, so it's difficult to justify a plan that would single us out as deserving better treatment than nurses or anyone else. Our biggest incentive is to train our people in new skills and to constantly provide them with interesting and challenging work." □

Tristram is a freelance writer in San Jose, Calif.

Views from the trenches

What's the biggest compensation challenge you face in hiring and retaining IT professionals today?

EUGENE L. MITCHELL

JR.

Information systems manager
State of Delaware Department
of Services for Children, Youth
and Their Families
Dover, Del.
IT staff: 10

"Budget. We're a department of the state government, and salaries in the state budget change little from year to year. We have had dialogue with state personnel about the problem and continue to work with them. Since we have limited opportunities for financial remuneration, we try to enhance the work environment and provide training and opportunities to work with state-of-the-art technologies. Whenever we can't fill our vacant positions, we use contractors to do the work. Since this usually increases our costs, it is not a good long-term management strategy, which is why we continue to work with state personnel to develop a better solution."

TERRY GROVES

Senior vice president of information services
Blue Cross/Blue Shield of Nebraska
Omaha
IT staff: 50

"Competition for the best talent. Surprising as it may seem, Omaha is a hotbed for technology, and companies in the area tend to steal good employees from each other. We found that we were paying new hires as much as employees who had more experience. This year, we've put several incentive plans in place and corrected salary inequities. Some employees had as much as a 30% increase in their salaries. Since then, we've not lost anyone."



JACK NEMETZ

Director of data services
The St. Petersburg Times
(Pulitzer Prize-winning
newspaper)
St. Petersburg, Fla.
IT staff: 90

"Retaining the best employees. You can always find someone to hire, but word gets out about who the really good people are, and they're difficult to retain. We haven't implemented any specific incentive programs directed at retaining IS professionals, though. We had concerns from a corporate culture point of view with singling out any one group for better pay treatment. Our reporters and photographers and artists all make valuable contributions to our business, too. If we gave IS employees special incentives, the impact on other employees could outweigh any benefit we might receive as a company. So we try to sell ourselves as a company that is all about strong ethics, about truth in reporting and about making a difference."



BRUCE REIRIDEN

Vice president and chief
information officer
Care New England
(a three-hospital health
care system)
Providence, R.I.
IT staff: 59

"Providing a stimulating work environment. I think we've succeeded. Our turnover rate is less than 5%."



ROBERT REEG

Senior vice president of systems
development
MasterCard International, Inc.
St. Louis
IT staff: 350

"Finding people with the right technical skills. It's a question of supply and demand. As the shortage in a particular area increases, we will typically offer 10% to 15% above base salary to attract new employees with that skill. We've used sign-on bonuses on a case-by-case basis and have implemented critical-skills bonus programs for existing employees. But salary is just the beginning. We've also worked very hard to make this the kind of place [where] people want to work. We really think it's our environment that gives us the edge in the market."

CLINT BANDEMER

Vice president of information services
Travel and Transport, Inc.
Omaha
IT staff: 32

"Keeping salaries competitive. It is difficult in our area because of the competition for the experienced IT professional. We had an outside consulting firm come in and do a salary study of our entire company in 1996 to help us establish a minimum and maximum salary for all of our jobs and shared it with our employees. The study allowed our employees to see where they are according to the market. We have also added project bonuses, which give the employee the desire to complete the project on time, a feeling they are appreciated and additional compensation for a job well done." □

—Claire Thirum

More on Money

12 tips on how to best deal out your payroll dollars. Managing, page 50

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Data Architect

Immerses that Sprint PCS systems are designed and configured to optimally support the company's information systems. Requires 7+ years systems experience in data planning, analysis, design and implementation. Must have demonstrated knowledge of sophisticated, complex data technology solutions, industry standards and data management methodologies. Skills required include data requirements gathering, logical data modeling, use of CASE tools for data modeling, packaged application data structure analysis, and reverse engineering. Job Code: CW/DA

Database Administrator

Ensures Sprint PCS Database Management Systems (DBMS) are selected and configured to optimally support the company's DBMS-based information systems. Qualified candidates will have a minimum of 7+ years information systems experience in database planning, analysis, design, implementation and production support. Oracle experience required. Job Code: CW/DBA

DB2 Database Administrator

Ensures Sprint PCS Database Management Systems (DBMS) are selected and configured to optimally support the company's DBMS-based information systems. Qualified candidates will have a minimum of 7+ years information systems experience in database planning, analysis, design, implementation and production support, as well as 3+ years of VLOE experience on parallel IBM SP2 platform utilizing UDB and/or DB2/DBMS. Telecom experience a plus. Job Code: CW/DB2DA

Senior "C" Programmer

Defines system scope and objectives, preparing detailed specifications that encompass business processes, information flow, risk analysis, timelines, cost/benefit analysis, probable platform and impact analysis. Responsibilities include analysis of interfaces, and how to remove interfaces by utilizing data layers. Must have in-depth knowledge of business processes. Qualified candidates will have 5-7+ years experience, with a strong telecommunications background, computer application development, process knowledge and formal SQLC methodology (such as Method) expertise. Bachelor's degree preferred. Job Code: CW/SPC

Technologist

Primarily responsible for developing the short-term and long-term strategic plans for the evolution of information technologies within Sprint PCS as well as developing the solution-set technology components of the IT architecture. You will work within cross-functional teams of internal and external IT professionals requiring excellent interpersonal and presentation skills as well as the ability to communicate complex technical data and concept using standard business terminology. A high energy level, practical experience, creativity and the ability to grasp new concepts quickly are all essential to holding this position. Must have information systems knowledge which covers the spectrum of mainframes, client/server, Unix systems, data, voice and satellite networks. Bachelor's degree required as well as working IT experience in an operating environment; MBA a plus. Job Code: CW/TECH

System Administrators - Unix

Sr. Systems Administrator - Unix

Performs activities to maintain, configure, and support the corporate business and teleco switch systems as required to perform upgrades to the operating systems, databases, and third-party applications. Develops work plans for migrations and upgrades, and shares responsibilities for all production, development, and systems supporting teleco switches. Works closely with team members to perform component, operating system, file system and other configuration enhancements to optimize the corporate production systems. Technical degree and a minimum of 3 years experience in systems administration. Ability to use the system account report (SAR/SAU), and to author shell scripts required. Job Code: CW/SSA-U

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Platform Engineer

Responsible for determining platform operation requirements, assisting in projecting platform portion of network traffic, and addressing specific platform related issues. Will translate user system needs into specific platform configurations based on requirements, network impact and budget constraints. Knowledge in design engineering hardware/software implementation process and strategic and tactical technology development direction required. Job Code: CW/PE

Technical Architect

Provide technical leadership and guidance in the determination of technologies, interfaces, and vendors during the design and development of Sprint PCS business systems solutions. Responsible for project adherence to enterprise standards, solvability, flexibility, and monetary completeness of system solutions. A degree in computer science, engineering or information systems is desirable, as well as experience in telecommunications. Job Code: CW/TA

Sr. Technologist - PeopleSoft

Primarily responsible for developing the solution-set technology components of the IT architecture; defining scope of the evolution of the application architecture and standards, determining working policies for PeopleSoft solutions/innovations, serving as advisor to IT management on architecture and standards. You will work within cross-functional teams of internal and external IT professionals requiring excellent interpersonal and presentation skills, as well as the ability to communicate complex technical data and concept using standard business terminology. A high energy level, practical experience, creativity and the ability to grasp new concepts quickly are all essential to holding this position. Must have information systems knowledge which covers PeopleSoft i & PeopleSoft: CRM, SQL, Oracle DB, and at least four of the following modules - AR, AP, GL, PC, PR. Other skills preferred: C++, Unix and Unix scripting, IM, WMS, MS Office, LAN, e-mail. Bachelor's degree required as well as working IT experience in an operating environment; MBA a plus. Job Code: CW/SRTECHPS

Systems Analyst - Sr. Systems Analyst

Serves within the systems development group, working closely with assigned systems analysts, client functional groups and business teams to define work processes and develop IT solutions. Unix, C, SQL, PeopleSoft, and/or Oracle Developer 2000 desired. Job Code: CW/SSA-SMA

Business Analyst - Sr. Business Analyst

Serves within the business analyst group, assigned business analysts, client functional groups and technical teams to define work processes and develop IT solutions. Requires computer application development process knowledge and relevant experience using a formal SQLC methodology (such as Method). Job Code: CW/BA-SBA

Network Systems Engineers - Sr. Network Systems Engineers

Responsible for procurement and delivery of Network Administrative Systems Planning, design, development and implementation of SCF ANI services, WAN Planning, design, development of specifications for SCF and SWS based applications to include HLR, AC, and OTAP Planning, design, development for voice mail systems, wireless data and messaging applications. Knowledge required with (S-L), IMC, MSC, Systems Engineering, Provisioning Architecture, Local Number Portability, Cellular Digital Pack Data and Cellular Circuit Switched Data. 3-10+ years experience in system analysis, design, development, program management, telecommunications, ANI or WNI systems, IS7 messaging (S-L), CDOP, Circuit Switched Data and other Data Protocols. 3-5+ years with MSC, Call processing logic, BCS or BSS required. MSC or BSS with emphasis in telecommunications system experience and/or management desirable. Job Code: CW/NSE/SNGE/SBP

Manager - Application Delivery

Responsible for managing ongoing development of application systems within various areas of SPCS. Requires 8-10 years IT experience in a client server environment with a minimum 3-5 years in a managing capacity. Must have a strong working knowledge of application systems software development/operation life-cycle methodology and familiarity with business processes. A four year degree or equivalent work experience is also required. MBA or equivalent is preferred. Job Code: CW/MAM



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Doing the Texas two-step

REGIONAL SCOPE Dallas-Fort Worth

IT managers are turning to campus markets, hiring "events" and beefed-up bonuses to attract new talent **BY LESLIE GOFF**

SINCE the Dallas-Fort Worth area began to rebound from the recession of the late 1980s and early 1990s, the information systems job market felt a dramatic shift. What was once an employer's kingdom has become an IS job-seeker's Shangri-la.

Candidates began getting offers that would have been unheard of just a few years ago. Now, six-figure salaries and consulting rates of \$60 to \$100 per hour aren't unusual. Entry-level IS salaries have shot up 50% since 1994. Sign-on bonuses can range from \$5,000 to \$10,000.

To find out how employers recruit and retain IS pros in this competitive market, *Computerworld* spoke to executives at two of the area's top 100 companies: a national consulting firm that recently added a practice in the area and a local IS recruiter who works with Fortune 500 clients.

CW: What impact has the shift in the local IS job market had on your hiring practices?

BATE: You can't just hang out at a shrine on a college campus or at

a job fair and get people to line up anymore. You have to work to attract them. Since 1994, things have gotten progressively tougher, and every year we've had to ratchet up what we do.

HEARD: We can't insist on a lot of experience like we used to. Whereas five or six years ago we would have insisted on five to six years of experience for a programmer, now we will go down to two or three years. And entry-level salaries are inflated beyond reach.

CW: Just how bad is the recruiting market?

HEARD: We recently had someone go through all the interviews. We made him an offer. We had filled out all the paperwork. And all he talked about was how excited he was to come work for us, how he loved the Fossil culture. We had offered him 25% more than we would have paid for the same skills a year ago. And at the last minute, he changed his mind to take another job for more money. And he wasn't even top-notch — he was middle-of-the-road. People who are mediocre are getting ridiculous salaries.

CW: What new strategies have you adopted or internal changes have you made?

SCHURACK: Clients are devising more lucrative salary packages and other benefits like flextime, cafeteria plans, gyms. They're trying to make their companies more pleasant places for people to work. The biggest change has been their willingness to consider the (H-I-B) candidate. Until recently it was almost impossible to deal with that.

BATE: Things that we would not have considered a few years ago are standard now, like retention

bonuses and salary reviews outside the regular review cycle. We also spend a lot more time on the intangibles of the work environment.

CW: What recruitment tactics have been the most successful?

BATE: We focus more heavily on the college grad market, and we've had to redouble our campus efforts several times. We have to pre-recruit. For example, we hold leadership conferences for [college] sophomores and juniors. I get the E-mail addresses of everyone we see on campus and communicate with them throughout their college career.

For experienced hires, we've had to increase salary packages. We see people spending a short time acquiring new skills and making it pay off in a six-figure income. We also offer sign-on bonuses that vary from individual to individual. Recently we hired someone who didn't yet have a green card, so we offered to take care of that — that can be a \$5,000 proposition.

HINES: Instead of individual interviews for our candidates, we hold "hiring events" — daylong and sometimes weekend-long staffing events that include corporate presentations, interviews, meals and social get-togethers over drinks with both our employees and our candidates. As a result, we're seeing over 70% of the offers we make turn into acceptances, which is greater than the industry average by a magnitude.

CW: What retention tactics have

been most successful?

HEARD: We use annual over-time bonuses. Maybe someone is working 60 hours a week — we try to recognize that at the end of the year. Stock options gain long-term loyalty; our stock has gone from \$4 to \$43 a share in last three years, and that has helped.

BATE: We have accelerated pro-

IT SALARIES IN DALLAS-FORT WORTH

The total compensation being paid to select IT professionals

Chief information officer	\$116,000
Project manager	\$73,000
Director of networks	\$71,000
Senior systems programmer	\$61,000
Database manager	\$58,000
Network administrator	\$56,000
Systems analyst	\$56,000

Source: Computerworld's 1998 Annual Salary Survey, to be published Sept. 7

motions. It would usually take several years and two or three assignments in the same job before we would move someone up. Now we have promoted people after only one assignment and one year in a job. We also use retention bonuses, project incentive bonuses — and that is new — and spot retention awards if we think we can get to someone who is at risk.

We have a number of social events, like a big party in the parking lot that was a misnomer of A Taste of Dallas. We have babies crawling around cubicles because parents can bring their kids in. We flirted with a "bring your pet to work" policy but decided that wasn't a good idea. □

Goff is a freelance writer in New York.

The panelists:

Jerry Bate, vice president of billing systems, telecommunications firm AT&T Consumer Services, Dallas

Dan Heard, senior vice president of operations, watchmaker Fossil, Inc., Dallas

Jonathan Hines, Southwest area manager, IS consulting firm Percom Systems, Inc., Dallas office

Dennis Schurack, senior recruiter and vice president, IS recruiter Dataparc Personnel Consultants, Dallas

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C++ Oracle or Informatica/Neon (New Jersey)

U++ HTML/SQL - both junior & senior level (New Jersey)

C++, Object-Oriented development & JDB/PL/SQL with Smalltalk (Kansas City)

System Testers

C/Unix, previous testing experience required (New Jersey, Plano)

COBOL/TSO/JCL/PRO/C++ - Test execution of MVS applications (Virginia)

Business Analysts

Systems Life Cycle Methodologies & Quality Assurance/Testing (New Jersey, Plano)

Database Administrators

DB2 & IMS & Oracle/Unix (Plano)

DB2 & Sybase (Virginia)

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Campus Edition

Starts
October 31, 1998

Space Deadline:
September 18, 1998

Material Close:
October 8, 1998



Technology

MANAGEMENT SYSTEMS

- Systems Programmer
- DB2 expert
- Change control
- Programmer Analyst
- COBOL, C/C++, C++

PRO RANGE SYSTEMS

- Programmer Analyst
- AS/400 RPL
- Web VS

Computer Operator

- OS/400

CLIENT SERVER

- Programmer Analyst
- Visual Basic
- Power Builder

NETWORKING

- Network Engineer
- Web NT Admin
- UNIX, AIX Admin
- Toolshoring
- Web NT/NT
- Web Office (front & back)

DBA

- DBA
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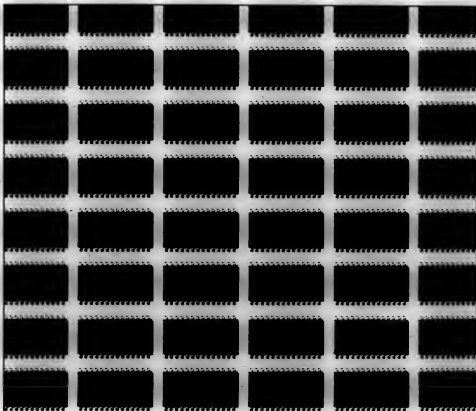
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**COMPUTERWORLD
FALL
Campus
Edition**

Issue: **October 31, 1998**
Specs Deadline: **September 31, 1998**

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October 5, 1998
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Software development and have a minimum of 3 years experience in **ERP**, **Web** and **SQL**, as well as a minimum of 1 year experience in programming with applications in development. **Programming** experience and software applications design. **Job Code: 40**

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The Computerworld Philadelphia Area Corporate Technical Recruiting Conference!

Monday, September 14, 1998

Philadelphia Marriott, Philadelphia, Pennsylvania

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7:45am Continental Breakfast & Conference Registration

8:30am Concurrent Sessions:

Building an Internet Recruitment Strategy
Tracy Claybrook, Claybrook & Associates

Making the Placement Office an Extension of Your Corporate Recruiting Office
Joan Craig, University of Pittsburgh

The Metrics Drive Staffing Model
Lynn Norman, Partners in Performance, Inc.
Nick Burkholder, HR Alliance

10:00am Sponsor Showcases/Coffee Break

10:30am General Session:

Candidate Selection
Dr. William Swann, President, Swann Consultants, Inc.

12:00pm Luncheon Keynote:
David Widom, Senior Editor, Computerworld

1:30pm Town Hall Forum

Lynn Norman, Partners in Performance, Inc.
1:30pm Sponsor Showcases/Coffee Break

2:30pm Concurrent Sessions repeat:

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The Metrics Drive Staffing Model
Lynn Norman, Partners in Performance, Inc.
Nick Burkholder, HR Alliance

6:00pm Program ends

Selected Sessions Include:

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David Widom, Senior Editor, Computerworld

David Widom, one of the industry's leading writers of the Information Systems profession, will give you an up-to-the-minute look in this very special keynote address.

Building an Internet Recruitment Strategy
Tracy Claybrook, President, Claybrook & Associates, Inc.

As most advertising reaches a saturation by television, radio, billboards, print media in various locations and so on - this unique marketing/promoting effort can take place on the internet to maximize your recruitment efforts. Learn about this and more at this session.

Candidate Selection
Dr. William Swann, President, Swann Consultants, Inc.

More than ever, hiring the most productive people is critical. Yet most managers are no better than chance at producing the right employee will balance on the job. In three sessions, you'll learn about the skills necessary to make accurate predictions and conduct an organized selection interview.

Town Hall Forum
Lynn Norman, President, Partners in Performance, Inc.

In this session, you'll not only be able to prepare your specific questions for open discussion, you'll learn of real world issues and solutions from your peers. You must want to meet this opportunity as Lynn Norman, an expert in the HR field, leads us through this modern discussion of your recruiting topics.

Conference Registration Fee* \$350.00

* Registration fee includes continental breakfast, lunch and the complete Conference Resource Guide. This conference program is developed exclusively for corporate human resources professionals who recruit directly for their hiring organizations. Vendors of selected, targeted products and services may participate through sponsorships and/or exhibits.

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Lynn Nemec, Partners in Performance, Inc.
Nick Burkholder, HRT Alliance
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- 10:30am General Session:**
Candidate Selection
Dr. William Swan, Swan Consultants, Inc.
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Nick Burkholder, HRT Alliance
- 1:30pm Town Hall Forum**
Moderator: Lynn Nemec, Partners in Performance, Inc.
- 2:00pm Sponsor Showcases/Coffee Break**
- 2:30pm Concurrent Sessions repeat:**
Building an Internet Recruitment Strategy
Tracy Claybrooks, Claybrooks & Associates
Making the Placement Office an Extension of Your Corporate Recruiting Office
Joan Craig, University of Pittsburgh
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- 5:00pm Program ends**

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Conference Registration Fee* \$350.00

* Registration fee includes continental breakfast, lunch and the complete Conference Resource Guide. This conference program is developed exclusively for corporate human resource professionals who recruit directly for their hiring organizations. Vendors of selected, targeted products and services may participate through sponsorships and/or exhibits.

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The City of Lansing is seeking a highly motivated and experienced individual to fill the position of **Information Systems Manager**. The successful candidate will be responsible for the development, implementation, and maintenance of the City's information systems. The position requires a minimum of five years of experience in a similar position and a degree in Information Systems or a related field. The position is a full-time position and is located in the City of Lansing. For more information, please contact the City of Lansing at (517) 487-1000 or visit our website at www.cityoflansing.org.

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Issue:
October 2, 1998
Space Deadline:
September 18, 1998
Material Closes:
October 2, 1998



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Joan Craig, University of Pittsburgh
 - The Metrics Driven Staffing Model**
Lynn Hansen, Partners in Performance, Inc.
 - Not Bothered, HR Alliance**
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- Candidate Selection**
Dr. William Stein, Stein Consultants, Inc.
 - Lunchtime Keynote:**
David Wilden, Computerworld
 - 1:30pm Town Hall Forum**
Moderator: Lynn Hansen, Partners in Performance, Inc.
 - 2:00pm Sponsor Showcases/Coffee Break**
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Joan Craig, University of Pittsburgh
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SOFTWARE ENGINEER
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Programmer/Analyst
 CO Programmer, RPA and other related Research. Requires a degree in computer science or related field. Will develop and test software, performing testing and user training after development. Education: Bachelor's degree in Computer Science or related field. Salary: \$60,000.00. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Willingness to travel and frequent relocation. Apply: Local Office Manager, Max Valley Job Center, 248 Park Avenue, Mahanwah, NJ 07430, Job No. 1530746.

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Programmer/Analyst
 CO Programmer, RPA and other related Research. Requires a degree in computer science or related field. Will develop and test software, performing testing and user training after development. Education: Bachelor's degree in Computer Science or related field. Salary: \$60,000.00. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Willingness to travel and frequent relocation. Apply: Local Office Manager, Max Valley Job Center, 248 Park Avenue, Mahanwah, NJ 07430, Job No. 1530746.

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Building an Internet Recruitment Strategy
Tracey Claybrooks, Claybrooks & Associates
Making the Placement Office an Extension of Your Corporate Recruiting Office
Joan Craig, University of Pittsburgh
The Metrics Driven Staffing Model
Lynn Nemec, Partners in Performance, Inc.
Nick Burkholder, HR Alliance

10:00am Sponsor Showcase/Coffee Break

10:30am General Session:

Candidate Selection
Dr. William Swan, President, Swan Consultants, Inc.

12:00pm Luncheon Keynote:

David Weldon, Senior Editor, Computerworld

1:30pm Town Hall Forum

Moderator: Lynn Nemec, Partners in Performance, Inc.

3:00pm Sponsor Showcase/Coffee Break

3:30pm Concurrent Sessions repeat:

Building an Internet Recruitment Strategy
Tracey Claybrooks, Claybrooks & Associates
Making the Placement Office an Extension of Your Corporate Recruiting Office
Joan Craig, University of Pittsburgh
The Metrics Driven Staffing Model
Lynn Nemec, Partners in Performance, Inc.
Nick Burkholder, HR Alliance

5:00pm Program ends

Selected Sessions Include:



Luncheon/Keynote Address

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Company	Change	Company	Change
Adi Corp.	0.7	Comcast Software Inc.	-0.3
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INDUSTRY ALMANAC

Adobe: Graphic concerns

Adobe Systems, Inc.'s software can alter an image and remove a blemish, but it isn't making its investors smile. In recent months, Adobe stock has lost about half its value. The company's revenue growth has been sluggish, but by economic problems in Asia — which accounts for about 15% of its product revenue — and by delays in shipping new graphics applications.

The company, which reported revenue of about \$671 million last year, recently warned investors that in its third quarter, which ended Aug. 26, it would break even or post a loss. A year earlier, Adobe had net income of \$53.4 million.

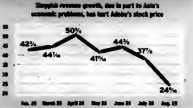
In response, the San Jose, Calif.-based company said it was restructuring and cutting up to 300 jobs — about 10% of its workforce.

Adobe's plight has made it a takeover target by Denver-based rival Quark, Inc., which makes QuarkXPress, a publishing software package widely used by newspapers and magazines. Quark didn't specify its offer, and Adobe said it wished to remain independent.

A key problem for Adobe, analysts say, is its continuing emphasis on upgrading applications for its legacy print customer base. "They need to have a suite of products that work well with the Web, and they need to communicate that the Web is their target," says Chris Le Toux, an analyst at Datapoint in San Jose, Calif.

New applications are also needed to improve Adobe's bottom line, according to J.P. Morgan's analyst of technology, Pacific Crest Securities in Portland, Ore. "Growth comes from new products, not just upgrades. They haven't really had a major-league hit in a long, long time," he says. Adobe is facing increasing competition from companies such as Microsoft Corp., but its software remains overwhelmingly popular with graphics designers, analysts say. — Patrick Thibodeau

INVESTORS' IMAGE OF ADOBE FADES



Sluggish revenue growth, due in part to Asia's economic problems, has hurt Adobe's stock price

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KEY: PE = Annual high reached in period (N) = New annual low reached in period
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Umbrella group gets support

CONTINUED FROM PAGE 1

been filled.

Joining Microsoft in supporting WANTUG is IBM, which sells technology that works with NT, and International Data Group (IDG), a major player in the computer trade publishing and conference industry. IDG is the parent company of Computerworld.

Despite the depth of its installed base, Microsoft has long stood alone among the leading industry vendors as having no formal relationship with any user groups (see story, page 1). Unlike enterprise players Digital Equipment Corp., Hewlett-Packard Co., IBM and Oracle Corp., which formally sponsor

and support user groups and periodic conferences, Microsoft has left the grassroots start-ups pretty much to themselves. WANTUG hopes recent agreements will change all that. Those include the following:

- WANTUG President Charles Kelly said Microsoft President Steve Ballmer vowed to assist the organization, offering both financial backing and help in creating a World Wide Web site, which is slated to be up before year's end. WANTUG now has its own Web site (www.wantug.dl.usnw.com), but it focuses mainly on association information; the new site will provide technical information.

- An IBM spokesman said funding will go toward building and maintaining the WANTUG Web site, along with creating related conferences.

- IDG plans to sponsor a series of Windows NT-focused conferences. The first one is slated

for March. It also plans to produce a series of NT-focused supplements that will run in multiple company-owned newspapers and magazines.

A dollar amount on all three financial offers wasn't made available. Kelly emphasized that the financial backing won't affect the association's independence.

COOPERATION

Kelly said he hopes the added support will help funnel information on technology deployment and maintenance issues to members. Another goal is to help tie the individual groups more closely together to share information and offer them weightier leverage.

"We want to empower local groups, and funding should help us do that," Kelly said. "The last thing we want is for Microsoft to own one more thing. But it's very important to



Part of IBM's funding will go toward building a second WANTUG Web site to offer members technical information

work with Microsoft like this. It's the source for all NT and BackOffice information."

Dennis Martin, president of the Rocky Mountain Windows NT User Group, said that although he welcomes the funding to WANTUG, the individual groups still will receive no support. But he said he is looking forward to stringing the individual groups together more tightly so they have a better chance of getting Microsoft's attention.

"The whole idea... is to leverage the level of contact some groups have with Microsoft out to the other groups," Martin said. "We can send up a representative for 10,000 mem-

bers, and we can say, 'Gosh, this would be a great feature to have.' We want to be a friendly voice saying these are some things you should do."

"This will be extremely helpful for corporate IS," said Nick Schuster, president of the Big Sky NT User Group in Great Falls, Mont. "Imagine people being able to lay hands on applications in a nonproduction environment with their peers around them. They're not sitting there doing it on their own during the day with fires to put out and the phone ringing. User groups should be a sanctuary. This should be the place to play." □

MORE ONLINE

For NT resources, publications and user groups, visit Computerworld online.

www.computerworld.com/more

Groups can aid Microsoft push into enterprise

CONTINUED FROM PAGE 1

Schlueter, president of the Big Sky NT User Group in Great Falls, Mont. "It is frustrating because we're their strongest proponents. We can take the weight off their technical support people. Why isn't Microsoft thinking that we're their foot soldiers?"

Enterprise players IBM, Oracle Corp. and Digital Equipment Corp. long ago learned that lesson. Part of the way those companies meet the demand for support and technical information is by running and backing major user groups and periodic user group conferences.

DIFFERENT STYLE

That hasn't been Microsoft's style. The Redmond, Wash., software maker has kept user

groups at arm's length. It says it supports them by offering software that can be raffled off at fund-raisers and by providing occasional speakers for meetings.

Industry watchers attribute Microsoft's reluctance to an unwillingness to have an organization that close to it that it does not have complete control over.

John Bridger, Microsoft's newly appointed user group program coordinator, said offering financial support to the approximately 1,500 user groups that focus on Microsoft products is out of reach. "I know [President] Steve Ballmer made a commitment to user groups about a month ago to see to it that we would have a very proactive approach to support-

ing them," Bridger said. "I don't know about supporting them financially. There's 1,500 of them."

According to Paul Bazley, Microsoft's general manager of Technical Community Development, when company executives were formulating the TechNet plan (see related story, page 16), they passed around the idea of forming an official company-sponsored user group. But instead, they decided to tie the service program, which is focused on information and support, closely with the existing, independent user groups.

"If TechNet is done right, it will accomplish a lot," said Bazley, who gathered 40 user group presidents in Redmond two weeks ago to critique the TechNet program. "When we talked to the user group presidents, they saw this as complementary to what they do."

LIST OF DEMANDS

But that group of representatives caught Microsoft off guard by forcing a discussion of the issue of the company's relationship with user groups and taking the opportunity to air grievances and push for better alliances. According to

Schlueter, the group told Bazley it wanted the following:

- More direct contact with technical people inside Microsoft.
- Better access to beta software and updates.
- Meaningful technology road maps.
- A liaison who will help and represent them.

Bridger said he attended the meeting, and emphasized that he is the liaison they have been requesting. He said many members simply didn't know his position existed.

Bazley said he is pulling together a slew of department heads to answer the group's criticisms at a follow-up meeting scheduled for December. At that meeting, the members will discuss how helpful the new TechNet program is proving. He also pledged to publish a report next month on how to tie the TechNet effort to the user groups.

And Bridger said he brought in 16 user group presidents last week to talk about their needs and problems. He said that is a procedure that has been repeated two or three times each year.

In addition, Microsoft is offering financial backing to the

Worldwide Association of NT User Groups (see related story, page 1).

"That's all good news," said Howard Sobel, executive director of the Windows User Group Network (WUGNET), which has about 100,000 members who sit its information-oriented World Wide Web site. "We're hearing good things about what Microsoft is doing in terms of technical support. It's been better, but you always want more."

Several user group presidents who were at the meeting said they came away feeling hopeful that the relationship was being strengthened.

"Based on the things they showed us last week, it's coming," said Dennis Martin, president of the Rocky Mountain Windows NT User Group. "They're [at the start of] addressing the IT professional the way they've done for developers for so long."

Some users, however, said they don't think it is Microsoft's responsibility to offer any more than that.

"I don't have time to be running to a lot of different resources," said Bruce Seelinger, applications analyst at the construction production division of Caterpillar, Inc. in Clayton, N.C. "If I can get what I need without a formalized user group, good. They're just not that important to me." □



WUGNET has about 100,000 members who list its information-oriented World Wide Web site

The Back Page

altcw

Dispatches & Page from the edges of the tech world from



THE OTHER WHITEWATER

Information flows freely at the latest World Wide Web site for whitewater enthusiasts: Riverworld (www.riverworld.com). The site features reports on stream flows as river runners and paddlers can track the current and historical water levels of their favorite rivers. Riverworld also has guidebooks, safety tips and an online store catering to those who paddle or float rivers on their own or travel with a guide service. "We intend for this to become the Amazon of river sites on the Web," says founder Doug Sims, referring to the river, not the online bookseller.



Talk about Big Brother! The CarMon is a

black box that mounts on the floor of a car and records 800 acceleration, braking and cornering events, as well as starts and stops. The vendor, OnGuard Technologies in Seattle, says parents can use the \$90 box to monitor teenagers' driving habits, and businesses can monitor the way company vehicles are driven.



In this end of the coffee-table book? Cinegram Media, Inc. in Summit, N.J., has released a CD-ROM, "Norman Rockwell: The Man and His Art" (\$70). It has more than 420 of his magazine covers, illustrations and paintings, plus art-appreciation lessons, trivia, a rare kinescope interview and a studio tour.

THE FIFTH WAVE by Rich Tennant



You know, I've asked you a dozen times not to animate the cartoons on our Web page!

Inside Lines

Mac Company Alpha splits yet

Company's first Alpha-based workstation, which was not to be announced next month, has been delayed. The company last week confirmed reports in "Electronic Business (Mac-Based Enterprise Computing)," an Oakland, Mass.-based newsletter, that the announced date of the Company Professional Workstation version 1.0 has been pushed back from September to some time in the last quarter of the year. A company spokesman said Company is continuing to "refine" the new workstation that apparently "are not yet quite ready for prime time."

Great minds

First SAP launched the name Strategic Enterprise Management as an acronym out of analysis application, which it announced in June, for easier pronunciation. Now, application and Oracle plans to give that very same acronym to financial analysis software it will introduce in September. After being told about the identical naming, an Oracle spokeswoman said company officials and their lawyers will have to talk about whether a name change would be prudent.

And for automating, we'll use Silly String

Andy Heller, director of information management in Hydrus Agent North America in Tampa, Fla., has employed his office with a silly new system for helping business users understand the complex workings of SAP R/3: a set of Legos. To show how different built-on products link to R/3, Heller put labels on various Lego building blocks and attached them to a base plate that represents the SAP software. "We're not actually doing our architectural design with the Legos," he beams to explain. "We more of a visual aid that I'm going to get the point across."

Underdog for success

Most of the IBM executives gathered for last week's AS/400 press briefing in New York were dressed in Big Blue's customary conservative business attire — but not John Quarantelli, IBM's AS/400 vice chief. Quarantelli, who craved into the briefing sporting a heavily striped shirt and no jacket, quipped, "IBM means cool technology... which means I don't have to wear a suit." With IBM planning to make the AS/400 cool, maybe it's all the other executives who should, or follow suit.

The runner still

Apple Computer's Macintosh OS, the venerable replacement for the Macintosh operating system, is now slated to become the Mac OS X never this fall. The long-awaited Macintosh will play second fiddle to the newly emergent Mac OS. Apple plans to deliver next fall... . Calixton Systems is expected to cash in on the low end of the multi-processor market with two new low-cost models this week. The Rochester, N.H.-based vendor will debut the SmartSwitch Server Series (led by big brother, the iSwitch), which will cost about \$100 per part... . San Francisco-based start-up Cubix is the next few weeks will launch Ravelin AIC, international collaboration software that lets multiple users share and discuss designs, renderings and project documents over the net. Cubix was founded by former lead engineers at Autodesk.

Verity reported last week that cable network TNT will produce Pirates of Silicon Valley, a made-for-TV movie that focuses on the early days of Apple Computer and Microsoft. ER's Noah Wyle will play Steve Jobs, and Anthony Michael Hall (the nerdy kid from Weird Science and The Breakfast Club) will portray Bill Gates. Too bad — we were hoping for Macaulay Culkin as Jobs and Rich Morano (Honey, I Bleasted the Operating System) as Gates, along with Ben Kingsley as Andy Grove, Clint Eastwood as Jim Balsardale and Jerry Lewis as Larry Ellison. News editor Patricia Keefe's role is sorting through your news tips and tidbits. E-mail them to her at patricia_keefe@pcw.com or call (508) 850-8183.

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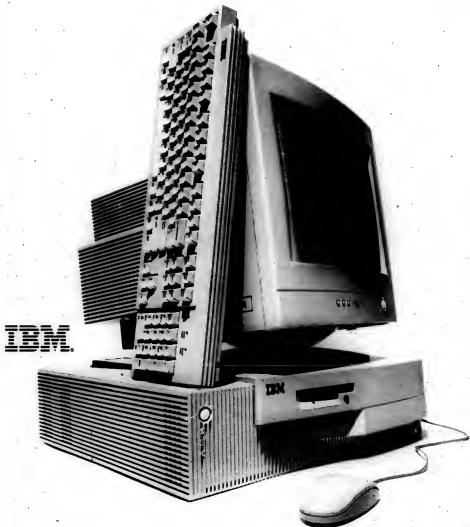
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